POPULAR Computing WEEKLY

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24-30 January 1985

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Vol 4 No 4

QL support and sales still 'slow'

EXACTLY one year after the launch of the Sinclair QL the machine has still failed to firmly establish itself in the market

To date, the number of QL software programs available in the shops is still in single figures and, despite announcing seven programs at last week's Which Computer? Show, support from independent software houses that Sinclair's managing director Nigel Searle promised last June has largely not materialised.

None of the peripherals promised a year ago by Sinclair – except the monitor display – have yet appeared.

In June, Nigel Searle claimed there would be over 60 titles by the end of 1984, and that Psion, Quicksilva, Melbourne House, and Picturesque among others were in discussions regarding software production

Yet Psion has so far produced only one program in addition to the bundled packages with the QL itself – *QL Chess*

None of the others have produced any QL software Melbourne House, for example, began work on a QL version of *The Hobbit* and then pulled out. Alan Giles, software products co-ordinator at Melbourne House said "We will continue to publish books for the QL, but as far as software is concerned, we will wait until we are convinced there is a market for it, since it doesn't appear that many QLs have been sold.

Part of the problem for software companies is the microdrive storage system, as David Link of Hi-soft, whose QL *Disassembler/Debugger* is due out within the next couple of weeks, explained "The QL really needs a better storage sys

continued on page 4 ▶

YOUR POLL RESULTS - P 14

Possible price cut for BBC

A PRICE cut for the BBC B micro could be on the way following a lean Christmas for Acorn Computer

High Street stores have already been discounting the machine, from £399 to around £360 since Christmas.

"A price cut is certainly an option open to Acorn,' explained an Acorn spokesman

"So far the price has stayed high, because demand has al-

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Atari add-ons planned for major micros

ATARI is to sell peripherals for the Commodore 64 and Spectrum – including a 3½ inch disc drive for under $100 (around £100).

The company's range of disc drives printers, and monitors to accompany the XE and ST series machines will be adapted with appropriate interfaces to enable the add-ons to be used on other popular machines.

"The peripherals will be marketed under the Atarisoft name, as part of Atarisoft's expansion,' said Rob Harding, Atari UK's marketing

continued on page 4 ▶

Sinclair drops Spectrum

SINCLAIR has reduced the price of the Spectrum + by £50 and is to discontinue the rubber-keyed version in the UK

The Spectrum + now costs £129 95 and the Sinclair six-pack of software is no longer bundled with the machine

The six-pack is now available separately at £14 95, only if purchased at the same time as a Spectrum +

The original Spectrum launched in April 1982, is to be phased out in the UK, but will continue to be sold overseas

In this country there is no longer a recommended retail price for the Spectrum while

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MICROFAIR TICKET OFFER > KNIGHT LORE MAP



No man's land
ORIC/ATMOS
ORIC/ATMOS
OPTIMUM
PANIC
THE HARE AND THE TORTOISE
MULTI FILER
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Vol 4 No 4

POPULAR Computing WEEKLY

View

After disappointing sales this Christmas, Acorn and Sinclair must now plan their strategy for 1985.

Sinclair has been the first to react by cutting £50 off the cost of its Spectrum + model. If Acorn is serious about being in the home micro business this time next year then it too must drop the cost of the Electron and BBC.

Unfortunately the reasons for sluggish Christmas micro sales have little to do with cost, and more to do with the machines themselves. The first-time computer buyer's market is now well saturated and the bulk of new purchases are being made by existing computer owners up-grading. For these buyers, neither the Spectrum + nor the BBC are attractive options. But for its microdrives they would buy a QL. Instead they are tending to settle for an Amstrad.

What will Sinclair and Acorn be offering this rapidly expanding group of purchasers next Christmas to rival Atari's impressive ST range?

Acorn must produce a new home micro, and fast; cutting the BBC price won't do. Acorn, at present, seems uncertain if it wants to be in the home or business market.

Sinclair's problems may be less serious, but they are still bad enough. Microdrives have meant that the QL has never taken off properly since its launch this time last year. Sinclair has lamentably failed to support the machine either with peripherals or software.

Could it be that the reason Sinclair has been so slow to support the QL is that it has realised its bad judgement in using microdrives and has been working on a new computer? If so, it must have cassette and disc interfaces, and preferably be 68000-based.

Cutting the cost of the Spectrum + isn't enough.

Presents...

Futures...

CST's QL disc interface reviewed . . Amstrad ROM revealed . . machine code text animation on Spectrum

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ABC

56 062 copies sold every week (Jan-June 1984 ABC)

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

CBM 1542 disc drive shelved

COMMODORE has shelved plans to produce its 1542 disc drive

The 1542, intended as a successor to the 1541, was announced last year at the same time as the Plus/4 and C16

Instead, at the Winter Consumer Electronics Show at the beginning of January, Commodore exhibited a new disc drive, the 1571

Chris West, Commodore's software evaluation manager, said, "The 1542 disc drive has proved too expensive to manufacture "

The alternative 1571 is planned to accompany the C128, but should also be fully compatible with the Commodore 64, Plus/4, and LCD portable, also launched at CES It is expected to be available in the UK when the C128 is launched here – in June/July Prices have not yet been fixed

● Commodore also has a range of Infocom adventures specifically for the Plus/4 in the UK in the pipeline Infocom's *Zork* trilogy and *Starcross* should be available next month at £11 99, while *Deadline* and *Suspended* are set for March/April at the same price, as is *Hitchhikers Guide to the Galaxy* (see *Popular Computing Weekly*, January 17)

Other Plus/4 titles planned include *Tony Hart Art Master*, *Logo* and *Graphics Package*, due out around March Commodore has also converted a number of the ASK educational packages, *Number Chaser*, *Picture Builder*, and *Hide and Seek*, which sould be available at the end of this month

Acorn

◄ continued from page 1

ways been ahead of supply That position is now evening out, so it's a possibility

Sales of the BBC and Electron were lower than expected at Christmas and Acorn's share price on the Unlisted Securities Market has since fallen considerably

After the announcement of the ABC range in September the share price held steady until Christmas at around 80p Since than it has plummeted to 43p

Atari add-ons

◄ continued from page 1

manager 'Initially, the interfaces will be introduced for the Commodore 64, Apple II, and IBM, the other big-selling machines in the States But they will be made available in this country too, and a Spectrum version will almost certainly be produced.

"This is a major opportunity for Atari to go heavily into the peripherals market The idea of producing peripherals which can be used on a number of machines may be new, but we want to make sure there's an Atari product on every desk, even if everyone doesn't buy one of our machines "

Full technical details are not yet available, but the disc drives conform to the 3½ inch Sony standard and the lowest priced model will cost under $100 Prices have yet to be finalised

The disc and printer interfaces are planned to be available when the peripherals are launched, in either May or June.

QL sales

◄ continued from page 1

tem. At the moment there is only one place in the country that will directly duplicate microdrives and it copies them one by one "

However, John Tweedy at Talent, which has already released two adventures, *West*, and *Zkul*, on the QL sees things differently "To the three weeks that the programs have been out, we have achieved three quarters of the sales that our seven programs made last summer We have had on problem getting the microdrive cartridges from Sinclair, and while the microdrive duplication is expensive and pushes the price of the product up, we fully intend to write more for the machine "

At the Which Computer? Show last week, Sinclair previewed the first of its programs for the QL

Triptych's *Project Planner*, *Decision Maker*, and *Entrepreneur* have each been licensed to Sinclair for the QL at £39 95 Sagesoft's *Integrated Accounts* program was shown at £89 95 *Cash Trader*, a small business book keeping program, will cost £69 95, and a *QL Assembler*, licensed from GST, will cost £39 95

Also announced, though not shown, were *Touch 'n' Go* – a typing program at £24 95 – and *QL Pascal* from Metacomco at £89 95

Bandersnatch, the ex-Imagine megagame being developed for the QL by Fire Iron is according to Ian Hetherington soon to be completed Games Workshop has also converted its Spectrum Wargame *D-Day* for the QL, which will be available in March at £24 95

Neither the 0 5M Rom expansion nor the Winchester Interface and hard disc have not yet appeared. There is no terminal emulator, no multi-channel sound generator, no IEEE-488 or parallel Centronics interfaces, and no analogue/digital interface.

In its present form, too, the QL will only operate one peripheral at a time Some software juggling is needed on the part of the user to correct this

With the small amount of hardware and software support, it is not surprising that the sales have been affected One press report quoted a figure of 40,000 machines sold since January 1984 Sinclair would not confirm the figure and declined to give any sales indication

"Sales of the Sinclair QL have been very slow," said a spokeswoman for W H Smith

"QL sales have been on a par with those for the Plus/4", said John Flatman of Boots, who added that sales of the Plus/4 had been disappointing

● Cambridge-based CST has produced a disc interface for the QL

The device links to CST's BBC disc drive unit – a 5¼ inch double-sided double-density system.

IBM clones at NEC show

COMMODORE formally launched its IBM compatible PC at the Which Computer? Show at Birmingham NEC last week Although several of the 8088 based 256K machines were on display, no price or availability details were announced

Among the other companies exhibiting at the largely business computer show was Sinclair, which demonstrated new QL software with a predominantly business slant (see separate News item) The company also celebrated the sale of its five millionth computer with a raffle to win a gold-coloured QL OE's three-part QL modem (see *Popular Computing Weekly*, 29 November) was also on display

Toshiba also launched two new IBM compatible micros – one a portable – at around £2,000 each. Quest showed us QL peripherals and also a number of business software packages written for Amsoft on the CPC 464 The five programs are *Invoicing*, *Sales Ledger*, *Stock Control*, *Purchase Ledger* and *Nominal Ledger*

Oxford Computer Publishing launched a disc-based accounts system for the Spectrum using a SP-DOS interface and Shugart-driven 3½ inch disc drive

Mitsubishi cuts price on MSX

MITSUBISHI has become the third company to reduce the price of its MSX computers, following Toshiba and Goldstar (see *Popular Computing Weekly*, Dec 20)

The 64K MLF 80, which was launched at £299, now costs £275 The 32K MLF48 is now £225, down from £249

Along with the price cut, six software programs now come free with the machines The pack contains *Chuckie Egg* (A 'n' F) *Les Flics* (PSS), *Blagger* (Alligata), *Eric and the Floaters* (Hudson) *Mr Wong's Loopy Laundry* (Artic) and *Shark Hunter*

"Dealers were beginning to discount on the price of the Mitsubishi MSX's in order to remain competitive with other machines, so it seemed sensible to make a price cut official" said a spokesman for Mitsubishi

"The software is not a limited offer – it will continue for the foreseeable future "

Britons convicted on export charge

TWO business men have become the first Britons to be convicted of selling banned computer technology behind the Iron Curtain.

The men, 42 year old John Ludlam and Christopher Millington 40, were prosecuted under the Export of Goods (Control) Act of 1981, which governs the restrictions regarding the sale of high technology to the Soviet Bloc countries

At Southwark Crown Court Ludlam pleaded guilty to 13 charges of exporting prohibited goods between October 1982 and April 1983 Millington admitted two charges

Ludlam was sentenced to the maximum two years in prison and Millington was sentenced to four months suspended for two years Ludlam's company, Michael Ludlam Associates was fined £30,000

The two men flew to Switzerland in November 1982, after Ludlam had obtained export licences saying the computers were for a Swiss drugs company. The pair then travelled to Sofia in Bulgaria, and discussed the sale of the six computers with Bulgarian government representatives

The question of which computer technology should and should not be sold behind the Iron Curtain is determined by the Coordinating Committee (CoCom) a NATO administered multi-national committee, which meets every six months to review its decisions Each CoCom member state then prepares its own legislation in accordance with CoCom's decisions The 1981 Export of Goods (Control) Act in this country will probably be superseded shortly to take account of CoCom's latest review in Paris last November, when some of the rules were relaxed.

The relaxation has led to a sales drive by ACT – its Eastern Bloc distributors Quest Automation has taken the Apricot range to the USSR, although until the new recommendations become law – in about six months time – Quest will only be able to exhibit the machines, not sell them

Spectrum +

◄ continued from page 1

stocks are sold off so heavy discounting can be expected.

Sir Clive Sinclair said, "The home computer market is currently entering a very vigorous phase and we anticipate strong competition from US manufacturers in particular

"Economies of scale in introducing the Spectrum+, which has reached in excess of 200,000 units per month have now permitted us to take a strong lead in reducing prices "

Sinclair's up-grade options from conventional Spectrum to Spectrum+ have fallen in price accordingly The upgrade in kit-form now costs £20 If Sinclair carries out the work it will cost £30.

The contents of the six-pack have also changed slightly The £14 95 package now consists of *Tasword 2, Tiny Touch 'n' Go, Return of the Jedi, Deathstar Battle, Scrabble, Chess* and *Vu-3D*

Free ticket offer

200 free tickets

for the 15th ZX Microfair

15th ZX MICROFAIR
ALEXANDRA PALACE
WOOD GREEN, LONDON N22
SATURDAY 10am-6pm
9 FEBRUARY 1985

Popular Computing Weekly is giving away 200 free tickets for the 15th ZX Microfair – to be held at Alexandra Palace on Saturday February 9 – to the first 200 people who submit either programs for the ZX Spectrum or QL or letters for possible publication in the magazine **before February 2.**

All you have to do for your free ticket is to enclose a stamped addressed envelope with your program or letter submission.

Remember – the tickets go to the first 200 people to send in a program and the offer applies only to programs received by us **no later than midday on February 2.**

Letters

A function of the QL

SuperBasic on the QL is without an *Sgn* function.

One way of defining this in SuperBasic (where *True*=1 and *False*=0) is thus:

```
10 DEFine FUNction SGN (x)
20 RETurn (x < >0) – 2*(x <0)
30 END DEFine
```

Dan Altman
30 Jenner Road
London N16

Warm start, quiet crash

In Andy Pennell's review of the Enterprise computer I wondered why he made so little of the feature of the *Reset* switch which gives the machine a 'warm start'.

Having a QL which is very likely to 'quiet crash' resulting in the disappearance of the cursor and the failure of the machine to respond in any way to presses on the keyboard, I would consider such a facility a fantastic addition – preventing hours of frustration.

Does anyone 'out there' know how such a feature could be added to the QL – I would be delighted?

R A Crawford
69 Monument Road
Ayr
Scotland

Distribution pressures

Adding to J Keene's comments (January 3 issue) about software distribution, he is correct in his assumption about distributors like Websters being influenced by pre-release advertising when making up a stock-list.

All the major distributors now insist on extensive pre-release advertising before a program is even considered for inclusion in their catalogue. The outlay required to do this is often beyond the resources of many smaller software houses.

The discounts demanded by distributors have risen steadily over the past two years, and now often exceed 50-60 per cent. If you don't accept the discount levels you cannot get your program into the shops and the result, no sales.

It is common for software houses to promote a game only to see it pushed out of the running at the last minute by the latest 'mega-game'. Distributors now have fixed numbers of releases they will take on to distribute each month. If you aren't on their Top 20 – forget it.

Programs promoted as the distributor desires lose impact by the time they eventually get into the shops. The program name has become 'old hat' in the two months it takes for distribution to the shops.

I strongly feel that many good programs fail to achieve their full potential due to the present monopolistic attitudes of the distributors.

The present system of providing software on the retail shelves is stifling the market and offers no room for new small software houses to grow and establish themselves.

Jeff Tullin
22 Kings Close
Gateshead
Tyne and Wear

Take it or leave it?

I found the letter from D R Halliwell about the second hand value of software (January 10 issue) rather interesting.

If everyone thinks the way that he/she does, it probably accounts for my not having yet been able to purchase the second hand computer of my choice.

It may well be that D Halliwell paid around £350 for the software that is now being offered for sale at around £100, but I wonder if it has occurred to him/her that prospective purchasers may not *want* the kind of software that is being offered, in the first place?

I, for example, have been looking for a suitable BBC B with a disc drive for some time now, but I want it for use with database and word processing discs which I already own, and not for playing games in medieval castles.

Piracy is probably the least important factor governing the sale of secondhand software, however valuable. Instead, it is just not wanted in the first place. Anyone wishing to off load their unwanted games will encounter the problem that there are so many other uses to which computers can be put that entertainment is low on some peoples' shopping lists.

The moral for D Halliwell is, by all means purchase software to your heart's delight, but don't expect someone else to want it after you have finished with it. And certainly don't blame piracy.

K Mason
19 Lynchets Crescent
Hove
Sussex

'But, how many are still working?'

Disinfected sorceror

I was pleased to see a review of my program *The Staff of Zaranol* – in your magazine (Jan 3 issue).

The Vocabulary was stated as containing only 30 words and this is certainly not the case. The interpreter will in fact recognise well over 150 words.

All the names, spells, objects, etc, used throughout are authentic – the exception being 'Zaranol'.

I felt this sounded just right for a mighty sorceror until you pointed out that it sounds more like a new brand of disinfectant.

On reflection, I probably agree with you.

M J Gearing
Waterlooville
Hants

Keyboard scanning

Thank you for publishing an article on our Saga 1 Emperor keyboard.

After investing a considerable amount of monies and personal time investigating the Spectrum keyboard and its possibilities I would like to make the following points.

No matter how good a replacement keyboard is for the Spectrum, the user's speed is limited by the speed at which the Spectrum scans the keyboard device, which in most people's terms would be 'fairly slowly'.

With the Spectrum+, Sinclair modified the circuitry of the Spectrum (Issue 4B!) to accommodate it.

Tony Kendle may also be interested to know that we have made two modifications to the Saga 1 Emperor so that the interface components are now printed onto the connecting ribbons, so there are no problems with fitting to Issue 1 Spectrums.

D C White
Saga Systems
2 Eve Road
Woking
Surrey

Save the Amstrad

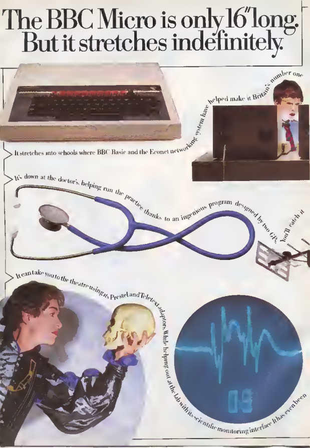
This may be of interest to Amstrad readers with Save problems.

Although getting all the right screen messages, and hearing the bytes being transferred, I have found that either the *Save* has failed or the computer is unable to sense the program in *Cat* or *Load*, about 70% of the time.

Initially, I suspected duff tapes but they recorded audio or Spectrum programs without any problems. The conclusion seems to be that if the tape has been previously used either to record programs from other makes of computer, the residual signal present either corrupts *Save*, or confuses the Amstrad so that it does not detect the program.

The answer seems to be to always use new tapes or to erase old tapes by recording without input on an ordinary audio recorder, before using them for the Amstrad.

Dorene Cox
Dagenham
Essex



The BBC Micro is only 16" long. But it stretches indefinitely.
It stretches into schools where BBC Basic and the Econet networking system have helped make it Britain's number one
It's down at the doctor's, helping run the practice thanks to an ingenious program designed by two GPs. You'll catch it
It can take you to the theatre using its Prestel and Teletext adaptors. While helping out at the lab with its scientific monitoring interface. It has even been



educational computer. It's making life easier in the office, and has grown into the country's top micro for small businessmen
on TV, the star of a series of computer literacy programmes. Its colour graphics and new Bitstik make it welcome in design studios
working in space, tracking a satellite it also helped design
Meanwhile, back on Earth at 19 Acacia Avenue
The BBC Microcomputer System. The world's best.
And still growing.
The BBC Microcomputer System is designed, produced and distributed by Acorn Computers Ltd

New-the official Spectrum Upgrade!

Turn your Spectrum into a Spectrum+ for just £30



Here's some exciting news for 48K Spectrum owners – the official Spectrum Upgrade Kit.

The £30 Kit has everything you need to turn your Spectrum into the stylish new Spectrum+. You don't even need an understanding of electronics, just the ability to solder a few wires together! The leaflet in the kit gives clear step by step instructions.

If you're not sure about doing it yourself, don't worry. Simply return your 48K Spectrum to Sinclair and for £50 we'll upgrade it for you.

Whichever you decide on, you'll also receive the new 80-page User Guide and Companion Cassette.

The bigger, better Spectrum keyboard

The Spectrum+ measures 12½" x 6". It has a large typewriter style keyboard, with hard, moulded keys.

You'll find the new keyboard has a smooth, positive action – ideal for touch-typing, word processing, simulation programs, and extended programming sessions. Two retractable legs give a perfect typing position.

There are 58 keys in all, including 17 new keys. Programmers will be pleased to see dedicated punctuation keys, a space bar and separate shift keys for graphics and extended modes. And a reset button allows you to clear a program from your computer's memory without disconnecting the power supply.

The official Spectrum Upgrade

Naturally your upgraded computer will accept all the peripherals in your Sinclair system – Interface 1, Microdrives and so on – as well as all Spectrum software.

Just as important, new Spectrum software and peripherals will be designed with the Spectrum+ in mind. So the Sinclair upgrade adds stylish looks, new capabilities... and new potential for the future.

Included – the new Spectrum+ User Guide and Companion Cassette

The new User Guide has over 80 pages of information, including a handy BASIC dictionary. The Companion Cassette provides an interactive tour of the new keyboard, and includes three entertaining arcade games.

TO ORDER BY MAIL.

When ordering the Upgrade Service, send off your 48K Spectrum to the address below carefully wrapped, together with the completed coupon and appropriate payment. (Please do not return the mains adaptor, manual or other ancillaries.) Your upgraded computer will be despatched to you within 10 days of receiving your order.

When ordering the Upgrade Kit, simply complete the coupon, enclosing the appropriate payment and post it to us at the address below. Please allow up to 28 days for delivery.

BY PHONE – Access or Barclaycard holders can call Camberley (0276) 685311 for personal attention 9am to 5pm Monday to Friday. Only the Upgrade Kits can be ordered by phone.

Please note: the upgrade offer applies to working 48K Spectrum models in the UK only.

To: Sinclair Research Limited, Upgrade Dept., Stanhope Road, Camberley, Surrey, GU15 3PS

All prices include VAT, post and packing, User Guide and Companion Cassette.

☐ Please send me the Spectrum+ Upgrade Kit. I enclose payment of £30.

OR

☐ Please upgrade my 48K Spectrum for me. I enclose my computer together with payment of £50.

I enclose a cheque/postal order payable to Sinclair Research Limited for £________

OR

Please charge my Access/Barclaycard no.

Signature ________

PLEASE PRINT

Name: Mr/Mrs/Ms ________

Address ________

Sinclair Research Limited
Upgrade Department,
Stanhope Road, Camberley,
Surrey GU15 3PS.

sinclair

Art of the States

***Dafna Israeli** surveys the new software on offer at this year's Winter Consumer Electronics Show at Las Vegas*

A veil of gloom and despondency is hanging over most American software houses at the moment

Games just aren't selling, and the mighty names such as Sierra-on-line, Epyx and Spinnaker are all experiencing financial difficulties

At Las Vegas, this was reflected in the relatively small number of programs announced for 1985

The home/games machines in the US are the IBM PC, Apple IIc and IIe and the Commodore 64

The Plus/4 and C16 have not gone down at all well, and the only software being shown for them was Commodore's own.

No-one has written for any Atari machines for the last six months after Atari's well publicised financial troubles and subsequent sale to Jack Tramiel

However, the new Atari range, shown for the first time at this CES was greeted enthusiastically by companies looking for a new market to take them back to healthy profits

"Bookware' was the buzz word for this year Publishers **Prentice-Hall Haydn** and **Bantam Books** all showed a selection of books and related software, Bantam launched *Living Literature* series for IBM PC and Apple II and C64, in conjunction with Imagic Titles announced in the series so far are *I Damiano* based on R A McAvoy's science fiction trilogy, *The Complete Scarsdale Medical Diet* and *Sherlock Holmes* Like Melbourne House's program, also based on the famous sleuth stories, this takes the form of an adventure Holmes must solve, rather than an adaptation of one of Conan Doyle's stories

Activision also launched a series called *Living Computer Novels*, the first titles being *Mindshadow* and *The Tracer Sanction* However, these are text/graphic adventures rather than adaptations of original literature *Mindshadow* sets the player on a desert island suffering from loss of memory – the quest is to discover your identity In *The Tracer Sanction* you play the part of an agent for the Stellar Intelligence Agency, tracking a notorious criminal through the universe

Activision is one of the few US companies not counting every penny, thanks to the runaway success of *Ghostbusters* on the C64 on both sides of the Atlantic The company had four other new programs on show *The Music Studio* is a joystick controlled music composition program for the Commodore 64 and *Rock'n Roll*, *Web Dimension*, and *Master of the Lamps* are all arcade-cum-strategy games using sophisticated music à la *Ghostbusters*

Imagic also appears to be escaping the worst of the software recession. It had plenty of new products on display, two of which, *Macbeth* and *Tournament Tennis* look very familiar *Macbeth* is a licensed version of the game available in the UK from Creative Sparks, *Tornament Tennis* is better known as Psion's *Match Point* in this country Imagic also made additions to its Education Simulation, Computer Talk, Action Sports and Arcade Action ranges. For under $20, many of the Arcade Action titles are being converted to the Commodore 64

Computer Talk is a new line, using synthesised speech in educational programs

Broderbund, one of the biggest names in American software, will be competing against Activision with its new music composer and synthesiser program for the Commodore 64, called *The Music Shop.*

The Music Shop uses Macintosh-style pull-down menus and windows, on-screen musical notation, and editing facilities using commands similar to word-processing The company's other products showed a heavily educational bias, with the Muppets being used to add entertainment to a package teaching word-processing, electronic mailing, database management, programming

The inner workings

and computer-aided design *Welcome Aboard! A Muppet Cruise to Computer Literacy* has been launched for the Apple II series, but a Commodore 64 conversion is on the way Other new Broderbund titles included a *Science Toolkit* educational program for the Apple and *The Ancient Art of War*, a wargame design program for the IBM The company also showed a C64 version of its stylish *Karateka* Apple title

Sierra-on-line, another big name, also had plenty of new products on the stand, which it divided into three categories, Entertainment, Productivity and Educational.

In the Entertainment range, *King's Quest II Romancing the Throne*, sequel to the highly acclaimed Apple game *King's Quest*, has appeared. And following on from *BC Quest for Tires*, *Grog's Revenge* involves a quest for clams – don't ask me why – and uses many of the same features as its predecessor *Black Onyx*, a fantasy role-playing game originating from Japan, was also launched. Sierra's productivity software launches centred around the Apple II

The Complete Scarsdale Medical Diet

CBS which set up its UK branch last Autumn, introduced 12 new titles Eight of these are educational packages, but the company also followed up *Murder by the Dozen* with *Felony!* for the the Apple, C64 and IBM, a strategy game in which a player must solve 12 crimes Also for the three machines – *Interplanetary Pilot* is a space flight simulator, *Quink* a multi-player quiz game in the same line as *Trivial Pursuit*, while *The Railroad Works* is a computerised model railway set in which the object is to plan and build railroad networks across 12 screens.

Only one British company exhibited, **Mastertronic**, whose budget-price software philosophy has gone down as successfully in the US as it has with buyers here Its C64 games sell on disc for $9 99 Mastertronic also has the US distribution rights to **Microsoft's** products – and *Games Creator* was voted best C64 software product at the show

Alongside the hardware which caught everyone's attention, **Atari** also announced developments on the software side *Infinity* and *Atari Writer+*, two utilities, were shown for its XE and 800XL range *Infinity* is a similar to *Lotus 1-2-3*, while *Atari Writer+* is a word processor with built-in proof reader Atari also previewed a number of forthcoming products two more utilities, one a guide to the inner workings of Atari computers, called *Atari Tutorial*, and an as yet untitled icon-driven graphics drawing package *Silent Butler*, rather misleadingly titled, is actually a domestic accounts program, and Atari also has a music composer program lined up, again icon-driven, with editing, saving, tempo and key change facilities

On the games side, Atari is converting the arcade games *Crystal Castles* and *Mario Bros* for the 800XL/XE machines

Jodging from the stagnance of the software industry in general, there could be a flood of conversions and new programs produced for the new Atari machines as and when they become available

It all depends on Jack Tramiel producing the goods he claims to be producing in the quantity promised



Fishpond

Dave Muir makes some interesting philosophical points with Fishpond for the Amstrad CPC 464

This program – an arcade game – has (using cursor keys) been written to work with the keyboard or joystick and contains a title page with full instructions

The player controls a fish in a fishpond evading the big fish that appear and eating all the tiddlers available The player's fish automatically drifts from side to side and he/she controls vertical movement The screen wraps around vertically. The fish's mouth has to be opened to eat another fish, by pressing 'pre', or 'copy'

Program Notes

It is not easy to convert the program for use on another machine as it uses CPC 464 specific features

The listing contains plenty of *Rem* statements which should make the running of the program transparent These can all be omitted when the program is typed in. If this is done readers may wish to alter Line 280 in the program to read – *every 9* instead of *every 10* giving a faster game

Variables

pnx,pny,pox,poy – new and old x,y positions player fish

pnc,poc – new and old player character for fish.

pm – mouth open/shut

pd – direction

bfx,bfy,lfx,lfy – big small fish x,y directions

bfd,lfd – big small fish directions

bk lk – flags to show big small fishes

tbf tlf – big small fish strings

tbf(1)|(2) – characters making up *tbf* string

ll – flag life lost

s – score

lnu – string lives left display

l – lives left

cs – flag signals interrupt shorten

bi – big fish appearance interrupt duration

loc,locy,sca – scale drawing reads

```
3 '       FISHPOND
4 '          BY
7 '       WAVEMUIR
8 '
20 GOTO 1000
30 '
40 '***UPDATE LIVES***
50 CLS #2:PRINT #2,FNu;:RETURN
60 '
70 '***UPDATE SCORE***
80 IF s>0 THEN IF s/50=INT(s/50) THEN s=s+50:cl=-1
90 CLS #3:PRINT #3,s;:RETURN
100 '
110 '***UPDATE SCREEN POSITIONS COMPUTER FISH***
120 '
130 '***BIG FISH***
140 DI:IF NOT bk THEN 200
150 IF ABS(bfy-pny)<24 AND ABS(bfx+32-pnx)<32 THEN ll=-1:bk=0:SOUND 7,50,55,7,0,3,2:FOR i=1 TO 400:NEXT:EI:RETURN: BIG FISH HITS PLAYER FISH
160 PLOT 0,0,6:MOVE bfx,bfy:PRINT tb$;:bfx=bfx+32*bfd:bfy=bfy+8*SGN(pny-bfy):tb$=tb$(1-1*(400(bfx-pnx)<128)):MOVE bfx,bfy:PRINT tb$;
170 IF (bfd=-1 AND bfx<-64) OR (bfd=1 AND bfx>704) THEN bk=0
180 '
190 '***SMALL FISH***
200 IF NOT lk THEN EI:RETURN
210 IF ps=2 THEN IF ABS(lfy-pny)<16 AND ABS(lfx-pnx)<24 THEN s=s+10:GOSUB 80:lk=0:SOUND 7,20,30,4,0,4,2:FOR i=1 TO 200:NEXT:PLOT 0,0,5:MOVE lfx,lfy:PRINT tl$;:EI:RETURN:'SMALL FISH HITS PLAYER FISH
220 PLOT 0,0,5:MOVE lfx,lfy:PRINT tl$;:lfx=lfx+32*lfd:MOVE lfx,lfy:PRINT tl$;
230 IF (lfd=-1 AND lfx<-64) OR (lfd=1 AND lfx>704) THEN lk=0
240 EI:RETURN
250 '
260 '***SET INTERRUPTS***
270 DI:pm=0:EI:RETURN
280 EVERY 10,0 GOSUB 140
290 EVERY 50,1 GOSUB 520
300 EVERY bi,2 GOSUB 590
310 '
320 '***LIFE LOST***
330 IF ll THEN d=REMAIN(0):d=REMAIN(1):d=REMAIN(2):d=REMAIN(3):MODE 0:CLS:ll=0:l=l-1:IF l=0 THEN 1020 ELSE 850
340 '
350 '***SPEED UP BIG FISH APPEARANCES***
360 IF cl THEN cl=0:bi=bi-10:d=REMAIN(2):GOTO 300
370 '
380 '***PLAYER'S MOVE***
390 EI:DI
400 IF INKEY(76)=0 OR INKEY(9)=0 THEN IF pnc<251 THEN ps=2:AFTER 10,3 GOSUB 270
410 IF (pnx>0 AND pd=-1) OR (pnx<608 AND pd=1) THEN pd=-pd:pnc=252-(pd=1)
420 pnx=pnx+pd*16
430 IF INKEY(72)=0 OR INKEY(0)=0 THEN pny=pny+8:GOTO 450
440 IF INKEY(73)=0 OR INKEY(2)=0 THEN pny=pny-8:GOTO 450
450 IF bk THEN IF ABS(bfy-pny)<24 THEN IF ABS(bfx+32-pnx)<32 THEN ll=-1:bk=0:SOUND 7,50,55,7,0,3,2:FOR i=1 TO 400:NEXT:GOTO 330:'HIT BIG FISH
460 IF lk THEN IF ps=2 THEN IF ABS(lfy-pny)<16 AND ABS(lfx-pnx)<24 THEN s=s+10:GOSUB 80:lk=0:SOUND 7,20,30,4,0,4,2:FOR i=1 TO 200:NEXT:PLOT 0,0,5:MOVE lfx,lfy:PRINT tl$;:pnx=pnx:pny=pny:ps=0:GOTO 330:'HIT SMALL FISH
470 IF pny>399 THEN pny=96
480 IF pny<96 THEN pny=399
490 PLOT 0,0,1:MOVE pox,poy:PRINT CHR$(poc);:MOVE pnx,pny:PRINT CHR$(pnc-ps);:poc=pnc-ps:pox=pnx:poy=pny:GOTO 330
500 '
510 '***SET SMALL FISH TO APPEAR***
520 DI:IF lk THEN EI:RETURN
530 lfd=1-2*(pnx<312)
540 RANDOMIZE TIME
550 lfy=128+RND*240:lfx=-32-672*(lfd=-1):lk=-1
560 PLOT 0,0,5:tl$=CHR$(255+(lfd=-1)):MOVE lfx,lfy:PRINT tl$;:EI:RETURN
570 '
580 '***SET BIG FISH TO APPEAR***
590 DI:IF bk THEN EI:RETURN
600 bfd=1-2*(pnx<312)
610 bfy=pny:bfx=-32-672*(bfd=-1):bk=-1
620 PLOT 0,0,6:tb$(1)=CHR$(249+3*(bfd=-1))+CHR$(247-(bfd=-1)):tb$(2)=CHR$(249+6*(bfd=-1))+CHR$(245-3*(bfd=-1)):tb$=tb$(1):MOVE bfx,bfy:PRINT tb$;:EI:RETURN
630 '
640 '***INITIAL SET UP***
650 MODE 0:BORDER 7
660 DEFINT a-r:DEFREAL s:DEFSTR t,u:DIM tb$(2):sh=0:DEF FNu=""+STRING$(l,255)
670 s=0:l=5:bi=600
680 INK 0,2:INK 1,16:INK 2,12:INK 3,9:INK 4,24:INK 5,0,15:INK 6,15,26:INK 7,6:INK 8,12
690 '
700 '***UDGs***
710 SYMBOL 255,0,0,80,52,08
720 SYMBOL 254,0,0,26,44,26
730 SYMBOL 253,140,222,247,127,255,222,140
740 SYMBOL 252,49,123,239,254,255,123,49
750 SYMBOL 251,142,223,244,120,252,223,142
760 SYMBOL 250,113,251,47,30,63,251,113
770 SYMBOL 249,3,142,221,126,123,223,143,3
780 SYMBOL 248,192,113,187,126,254,251,241,192
790 SYMBOL 247,224,240,126,255,255,254,240,224
800 SYMBOL 246,7,31,126,255,255,127,31,7
810 SYMBOL 245,255,250,184,192,192,232,250,253
820 SYMBOL 244,255,95,22,3,3,23,95,255
830 '
840 '***SET UP SCREEN***
850 pnx=304:pny=208:pd=INT(RND*2)*2-1:pnc=253+(pd=-1):poc=pnc:pox=304:poy=208:bfx=0:bfy=0:lfx=0:lfy=0:ps=0
860 TAG:PLOT 0,0,1:MOVE pnx,pny:PRINT CHR$(pnc);:TAGOFF
870 WINDOW #1,1,20,21,25:PAPER #1,2:PEN #1,3
880 CLS #1:PRINT #1:PRINT #1:PRINT #1," LIVES:     SCORE: 1
890 WINDOW #2,2,9,24,24:PAPER #2,0:PEN #2,4:CLS #2
900 WINDOW #3,12,19,24,24:PAPER #3,0:PEN #3,4:CLS #3
910 GOSUB 50:GOSUB 90
920 loc=80:locy=56:sca=1:GOSUB 960:loc=464:locy=64:sca=1:GOSUB 960:loc=240:locy=72:sca=0.5:GOSUB 960:loc=320:locy=48:GOSUB 960
930 PRINT CHR$(23)+CHR$(1);:INK:GOTO 280
940 '
950 '***WEEDS***
960 PRINT CHR$(22)+CHR$(0);
970 MOVE loc,locy:DRAWR 32*sca,120*sca,7:DRAWR 40*sca,-116*sca:DRAWR -16*sca,128*sca:DRAWR 32*sca,-120*sca:DRAWR 0,128*sca:DRAWR 16*sca,-124*sca:DRAWR 16*sca,124*sca
980 DRAWR 0,-128*sca:DRAWR 32*sca,120*sca:DRAWR -16*sca,-128*sca:DRAWR 40*sca,128*sca:DRAWR -32*sca,-124*sca
990 RETURN
1000 '
1010 '***END OF GAME***
1020 PRINT "    FINAL SCORE: ":PRINT        (s):SOUND 7,200,350,5,1,1,0:FOR i=1 TO 6000:NEXT
1030 IF s>sh THEN sh=s:PRINT " NEW HIGH SCORE! ":SOUND 7,300,400,2,2,0:FOR i=1 TO 6000:NEXT
1040 PRINT "    ANOTHER  GO?";CHR$(7);
1050 IF INKEY(46)=0 THEN END ELSE IF INKEY(43)<>0 THEN 1050 ELSE CLS:GOTO 670
1060 '
1070 '***SOUNDS AND TITLES***
1080 MODE 0:INK 0,24:INK 1,1
1090 ENV 1,5,1,50,5,-1,20
1100 ENT 1,10,50,25,16,-50,10
1110 ENV 2,5,2,80
1120 ENT 2,5,-30,80
1130 ENT 3,5,4,4,5,50,5,5,4,2
1140 ENT 4,5,4,2,5,50,2,5,4,1
1150 SOUND 7,300,350,5,1,1,0
1160 FOR j=1 TO 5
1170 PRINT:PRINT CHR$(143)+CHR$(142)+CHR$(138)+CHR$(133)+CHR$(214)+CHR$(131)+CHR$(138)+CHR$(133)+CHR$(133)+"  "+CHR$(143)+CHR$(139)+CHR$(138)+CHR$(133)+CHR$(133)+CHR$(143)+CHR$(215)+CHR$(135)+CHR$(14)+CHR$(212);
1180 PRINT CHR$(143)+CHR$(132)+CHR$(138)+CHR$(133)+CHR$(143)+CHR$(143)+CHR$(138)+CHR$(143)+CHR$(133)+"  "+CHR$(143)+CHR$(142)+CHR$(138)+CHR$(133)+CHR$(137)+CHR$(143)+CHR$(213)+CHR$(133)+CHR$(143)+CHR$(138);
1190 PRINT CHR$(143)+" "+CHR$(138)+CHR$(133)+CHR$(140)+CHR$(212)+CHR$(138)+CHR$(133)+CHR$(133)+"  "+CHR$(143)+" "+CHR$(138)+CHR$(141)+CHR$(1)+CHR$(143)+"  "+CHR$(14)+CHR$(212);
1200 PRINT SPACE$(20);:NEXT
1210 FOR i=1 TO 2000:NEXT
1220 '
1230 '***INSTRUCTIONS***
1240 CLS:PRINT:PRINT "   INSTRUCTIONS"";CHR$(7);
1250 IF INKEY(46)=0 THEN 850 ELSE IF INKEY(47)<>0 THEN 1260
1260 MODE 1:PRINT "FISHPOND":PRINT:PRINT "You are a fish in a small pond and your":PRINT "aim is to eat fish smaller than yourself":PRINT "and avoid those bigger than yourself."
1270 PRINT:PRINT "You automatically swim from one side of ":PRINT "the pond to the other and back again":PRINT "repeatedly."
1280 PRINT:PRINT "You can play with joystick or keyboard.":PRINT:PRINT "Up and down joystick or cursor action":PRINT "moves your fish up and down. The screen":PRINT "wraps around vertically. The fire or"
1290 PRINT "copy key opens your fish's mouth":PRINT:PRINT "You score 10 for each fish eaten with":PRINT "100 bonus for every fifth fish":PRINT:PRINT "(PRESS ANY KEY TO START)";CHR$(7);
1300 CALL &BB00:' EMPTY KEYBOARD BUFFER
1310 a$=INKEY$:IF a$="" THEN 1310 ELSE 850
```

Popular Poll Results

Unable to sleep at night? Does the time seem to have stopped still? Nervous? You must be waiting for the results of the first *Popular Computing Weekly* Readers' Poll . . . and here they are!

Game of the Year (overall)

There was never really much doubt over the winner of this one – **Knight Lore** from Ultimate was a clear favourite, polling just over a fifth of all votes cast

Far more interesting was the battle for second place, between **Lords of Midnight, Elite** and **Jet Set Willy**. **Lords of Midnight** just made it. One wit nominated the Sinclair QL in this category

1 **Knight Lore** *(Ultimate Play the Game)*
2 **Lords of Midnight** *(Beyond)*
3 **Elite** *(Acornsoft)*
4 **Jet Set Willy** *(Software Projects)*
5 **Ghostbusters** *(Activision)*

Arcade Game of the Year

One thing that can be learnt from the Poll results is that there is no such animal as a straightforward arcade game anymore. Games as diverse as **Moysy** (Melbourne House) and **Match Day** (Ocean) were picking up votes here, as well as the more traditional arcade action of **Revenge of the Mutant Camels** (Llamasoft). In the end, Ultimate's followers decided **Knight Lore** was very much an arcade game

1 **Knight Lore** *(Ultimate)*
2 **Jet Set Willy** *(Software Projects)*
3 **Elite** *(Acornsoft)*
4 **Deley Thompson's Decathlon** *(Ocean)*
5 **3D Star Strike** *(Realtime)*

Adventure of the Year

This was very much a two-horse race between **Lords of Midnight** and **Sherlock**, though **Jet Set Willy** and the inevitable **Knight Lore** did their best to count as adventures as well

Incidentally, lots of people voted for **The Hobbit**, which we had to disqualify, because it's been kicking around for about two years now, and we did specify that programs should have been released during 1984. **Valhalla** suffered the same fate

1 **Lords of Midnight** *(Beyond)*
2 **Sherlock** *(Melbourne House)*
3 **Return to Eden** *(Level 9)*
4 **Forest at Worlds End** *(Interceptor)*

Business Program of the Year

Business programs are obviously a very personal choice, either that, or very few '84 releases caught the imagination since most programs nominated were only picking up a few votes each. The bundled QL software titles each gained a number of mentions, with the notable exclusion of *Archive*.

In the end, there was only one clear winner, **Tasword 2** (Tasman), backed up by a number of votes for **Tasword 464**

1 **Tasword 2** *(Tasman)*

Peripheral of the Year

The best entry for this category, though unfortunately not the winner, was Ian Souter's nomination for the **QL 'Dongle'**. And, I suppose, if you have a QL it was useful at the time, if only as a means of getting the computer at all

Joysticks dominated this section, with **Quickshot II** proving the most popular

1 **Quickshot II joystick** *(Quickshot)*
2 **Corocon interface** *(FREL)*
3 **Currah Microspeech** *(Currah)*

Utility Program of the Year

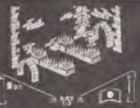
One of the clearest winners of them all, **The Quill** by Gilsoft finished with exactly twice as many votes as its nearest rival, Oasis's **White Lightning**. And, although **The Quill** was initially launched in late 1983, its vast number of votes seem to confirm it as a utility of 1984

1 **The Quill** *(Gilsoft)*
2 **White Lightning** *(Oasis)*

Best Software House

Congratulations to the team at **W H Smith and Son**, who drew a couple of votes in this section (shurely shome mishtake?)

However, they couldn't catch **Ultimate**, who netted over 40% of the total



Popular Poll Results



vote in this category, although A. Dawson did point out that he wasn't too keen on the price of its games

1 **Ultimate Play the Game**
2 **Beyond**
3 **Melbourne House**
4 **Level 9**
5 **Ocean**

Most Exciting New Computer

More funny entries here – whatever else you may think about the **BBC B** and the **Commodore 64**, they are not new computers. The **QL** and the **Amstrad CPC 464** were new this year, though, and between them, took two-thirds of the vote. The CPC464 won this section fairly comfortably

1 **Amstrad CPC 464**
2 **Sinclair QL**
3 **ZX Spectrum +**
4 **Commodore Plus/4**
5 **Enterprise 64K**

Best Programmer

Matthew Smith appears to have proved that imitation is the sincerest form of flattery, as he was a clear winner. *Popular* readers – are evidently keen brand loyalists, this section attracted a lot of nominations (including one for Daley Thompson – no, I didn't know he could program, either)

1 **Matthew Smith** *(Manic Miner, Jet Set Willy)*
2 **Mike Singleton** *(Lords of Midnight, Doomdark's Revenge)*
3 **Tony Crowther** *(Loco, Potty Pigeon, Monty Mole)*
4 **Jeff Minter** *(Gridrunner, Revenge of the Mutant Camels, etc, etc)*
5 **The Ultimate team**

Most Promising New Company

Most of the categories produced clear winners, but not this one. Nine newish companies polled the vast majority of the votes (41 were voted for altogether) and any one of them could have won. Eventually, however – and it was probably something to do with *Lords of Midnight* – **Beyond** pulled clear

1 **Beyond**
2 **Gargoyle Games**
3 **Gremlin Graphics**
4 **Mastertronic**
5 **Firebird**

Worst Computer

Everything, but everything, came in for stick here.

All the old favourites the **Spectrum**, the **Commodore 64**, the **Beeb**, all got vilified alongside the poor **Dragon**, **Lynx** and **Jupiter Ace**.

But no machines were quite so disliked as the **MSX** micros.

1 **MSX computers**
2 **Dragon 32**
3 **Vic 20**
4 **Sinclair QL**
5 **ZX 81**

Program You Most Regret Buying

Another category in which winners rapidly became losers. **Jet Set Willy**, **Sherlock** *et al* were all slagged off by some. F Senyszak declined to vote here, because "ever since Valhalla, I've been very careful." One person even dared to regret buying **Knight Lore**.

In short, nothing was immune, and 85 different programs were nominated. Suffice to say that **War of the Worlds** and **The Great Space Race** managed to tie for first position

1 = **Great Space Race** *(Legend)*
1 = **War of the Worlds** *(CRL)*

Most Overrated Software House

Imagine may have disintegrated last summer but it certainly hasn't been forgotten – it won this category with remarkable ease for a company that no longer exists

1 **Imagine**
2 **Ocean**
3 **Melbourne House**
4 **Automata**
5 **Elite**

Incidentally, Ultimate were in sixth place – you can win 'em all

Worst TV Spin-off

At last, a section **Ultimate** couldn't possibly figure in. **Elite** (the software house, not the game) did its best to win this one but made the mistake of releasing two games licensed from TV programmes, and so split the vote. Neil Gibson confessed that he actually *did* throw his copy of **Blue Thunder** at the wall

1 **War of the Worlds** *(CRL)*
2 **Fall Guy** *(Elite)*
3 **Ghostbusters** *(Activision)*
4 **Blue Thunder** *(Foundry Systems)*
5 **Airwolf** *(Elite)*

Silliest Advertisment

Popular pollsters are a squeamish lot – "Atari's tongues – ugh!" was a frequent comment in this box, and the ugliness of **Mikro-gen's** Wally Week made some of you recoil

But there was no doubt about the winners of this category – yep, folks, it's the soaraway Automata comic strip (just turn to the back page of this magazine)

1 **Automata comic strip**
2 **Atari 'tongue'**
3 **Automania**
4 **Commodore's elephant in the boxing ring**
5 **Pyjamarama**

Personal computer games

***Graham Taylor** goes in search of the perfect computer match at Dateline*

Let's face it, with a few exceptions, most of our daily contact with 'real' computers is at best dull and all too often, utterly infuriating. Nasty pseudo personalised letters, cash machines out of cash, purveyors of beauracratic blunders – all this and more. Unfortunately, it often seems that all the things computers are good at inevitably places them amongst the least interesting areas of human existance.

However, one of the most successfully computerised services of all lies in quite a different realm. For thousands of people a year the computer is the stuff of dreams, of hope, of, let us not baulk at the word romance. At Dateline, a PDP 11/34 with two Winchesters takes the place of discos, nightclubs, pubs, cafes, restaurants, friends houses, parties, etc, and introduces people of different sexes to one another, having used its processing power to ensure that each pair starts with something in common and no major impediments.

Dateline is intended for all those people who never did meet people in the kinds of places mentioned above, or who are divorced, or for some other reason feel lonely at one time or another. Strange as it may seem, a wide range of perfectly normal people use the service, some just have a good time, some get married, some make friends. It beats mail shots, VAT calculations, purchase ledgers, and spreadsheets as 'things' you can do with real computers anyway.

The idea of computer dating came from America, but Dateline was set up in 1966 – it was the first and is now the biggest company of its kind in this country. Current membership is over 30,000, with around 1,000 new members each month. Numbers fluctuate as members leave the system having met someone or simply lose interest. Factors like the time of year (December is bad, January is good as people look forward to a good time at Christmas, don't have it and then decide to do something about it) also have an effect, but one thing is clear – the numbers are getting bigger.

One of the most consistent criticisms of Dateline and organisations like it, is that the computer is merely a gimmick designed to lend what is little more than chance a spurious scientific appearance. I went along to Dateline to discover what it is, exactly, the computer does, if anything.

At Dateline's offices in London hundreds of enquiries arrive from hundreds of people in response to £400,000 worth of advertising in various magazines and the national press. These are typed into the computer and each person is sent details of the service. The details include a fairly extensive questionnaire in which you describe yourself and the kind of person you want to meet. This is where it starts getting computeresque.

The form consists of eight sections, yourself, what kind of person you want to meet, your personality, your relationships, your lifestyle, your work, your interests and finally a picture test. Let's deal with the last first and give the cynics something to munch on.

'How does the computer evaluate the results of something as abstract as that?' I asked Pauline Chandler, Dateline's PR person. She declined to take the rap for that one. "I'm always telling them to take that one off but apparently it's there just because some people like to do such tests – they enjoy them."

"So it isn't actually used for anything at all?"

"No – our psychologist says if someone was having problems finding a successful match he'd have a look at it, but I can't help feeling that's basically flannel."

Having removed question eight from our consideration, it is possible to see how the rest of the questionnaire works. In the first section you describe yourself by marking a 1 in appropriate boxes, there are different categories for skin colouring, attractiveness, smoking, drinking, education, school, religion, politics, build, etc, and thus the computer gets a broad description of what you are like.

In the next section, using 1's and 0's or by leaving the box blank, you build up a picture of the kind of people you want to meet.

The other sections involve indicating, within each topic, which statements you agree with, disagree with, or are indifferent to. The statements include such things as "I'm good at drawing people out when talking", "I like friends who challenge my views", "I like to dress conventionally" and were chosen and developed with a psychologist.

It can hardly have escaped your notice that all these O's and 1's, along with the spaces, represent a form of binary language – prime computer stuff – and thus when all this information is typed into the computer, it holds a fairly large amount of information in a simple way.

When you've paid your money, you are sent the results of a 'run' through the computer which means that your information has been compared with information from all the other people held on file and where there is a match this is printed out. You are sent the names and addresses of all the suitable people – around six on average.

What the computer does is compare the information on each person, excluding anyone who falls into one of the 'definitely do not want to meet' category. If people aren't automatically excluded, then the answers to the statements are compared and a reasonable correlation sought. This section isn't as strict in that a reasonable percentage of compatability is what's required. Questions are more subtle here, after all, if you agreed with "I prefer someone else to make the decisions" you don't want to meet someone who also agrees with that. By comparing the data and checking for exclu

DATELINE
the search for the perfect partner
QUESTION

mons someone who on paper meets your requirements can be discovered with a percentage figure for the degree of agreement

Actually, it can sometimes be more subtle than that – some people may find they are getting few or even nil matches The computer can be interrogated to see what exclusion(s) are causing the problem eg, it might be discovered that someone would substantially increase their chances of a match by dropping their insistence that nobody who drinks should be selected The company would write to the person and suggest the compromise

So the computer isn't a gimmick Like most computers, it's essentially doing something which is fairly simple and could be done by humans, but with the amount and complexity of information involved the job would be impossibly time-consuming

The man responsible for making the computer work and developing the system is John Gingall. He has that enthusiasm and vague sense of other worldliness that marks real computer programmers. I talked to him about the system.

"When I joined the company, the system was already developed – it was specially designed for the purpose although it's been modified in various way since then," he explained The program, perhaps suprisingly, is written in a mixture of Basic plus and Basic plus II with some Macro II for the actual matching operation and all the information is stored on two Winchesters

"Each one has room for 168 megabytes – in fact we could probably squeeze the whole system onto one Winchester but the run time would just get too slow " Looking at the actual screen onto one of the numerous terminals (the system operates on a resource sharing, time sharing basis) I noticed a replica of the questionnaire layout complete with 1's and O's and the remark NB Holding Block 6974 on channel 3 This, it emerged, meant that some information on this file was being kept back.

John explained, "Some parts of the file are kept back by the system because it simply cannot hold everything at once There are vast numbers of files holding different bits of data and this reminds us to be careful when updating If someone were to access the same file and change an address, for example, and then we sent the file we are currently looking at back into the system, the old address would rewrite the new address "

Talking of potential disasters, I asked whether (as computers are wont to do) the system ever broke down? "Oh yes, these days we make copies of everything two or three times a week but it's not uncommon to lose half a day's work "

The actual system has grown in all sorts of ways only indirectly related to the business of helping people meet one another One problem is the balance of the clientele, young women in particular, are usually lacking "We can advertise special offers to try and get particular sections of people we need more of. By putting the ads in an appropriate magazine we try to keep the balance right "

This has led to a fairly thorough analysis of the exact response from each magazine "Using the computer to analyse the results of the coupons we have received, we can discover things like cost per person of the ads, balance of sexes, ages, etc, and put out advertising where it'll be most effective in terms of getting the people we need "

As you can see, the system has actually become pretty sophisticated over the years and some people ought not like the idea that something so emotive and complex as human relationships should be treated in such a way But Dateline is pretty successful at what it does and in the end all the computer does is start you off.

As Pauline Chandler put it "All the computer does is give you the name, address and telephone number of someone who shares at least some of your interests and who has none of the factors that automatically put you off – it's up to you to make the phone call "

Reviews

In Orbit

Program *Space Shuttle* **Micro** Commodore 64 **Price** £9.99 **Supplier** Activision (UK) Inc., 15 Harley House, Marylebone Road, London NW1

Simulations may come and go, but *Space Shuttle* is likely to be around for a long time. Mind you it's not a fast-action, laser-firing shoot-out, but the highly complex flight manoeuvres can get a bit hectic at times.

As pilot of the space shuttle Discovery you are required to rendezvous with an orbital satellite, 210 miles above the earth. This is straightforward enough, in theory. In practise, the launching sequence, stabilising the orbit, docking procedures, de-orbit burns, re-entry to the earth's atmosphere and landing all have to be mastered.

Fortunately, the flight manual is very good. 31 glossy pages packed with screen dumps, diagrams and photographs provide background information and instructions. Another good feature of the simulation is the ability to use auto-simulation and simulation modes before you try the fully-fledged flight.

In the auto-simulation, the computer demonstrates most of the action and takes control, so that you don't have to use the keyboard. On the simulation mode, you get a chance to handle all the controls but you don't have a time limit, nor any fuel problems.

Activision have provided superb graphics for *Space Shuttle* – the cockpit vibrations during the launch sequence really give the impression of taking off. The roar of the engines is quite realistic, too. This simulation is a certain winner and should be in any flying freak's collection of games.

Tom Hussey

Satirical

Program *Return of the Joystick* **Price** £4.95 **Micro** Spectrum 48K **Supplier** Delta 4 Software, The Shieling, New Road, Swanmore, Hants SO3 2PE

Deep in his dungeon our hero stirs. A loud thud heralds the morning's post. 'Three hundred more *Manic Willy* clones for review,' he grumbles. But wait, here's an adventure which lays open the computer games world featuring several software company headquarters and (gulp) even the hallowed portals of 'PCW'!

Is there a mole in Sunshine Towers? Where is the Golden Joystick? Will the review ever start?

Yes, *Return of the Joystick* is a 'Mad' magazine style spoof on all that we love and cherish in this micro world – deduction, daring and late delivery dates. It features the stars of computing (and none so bright as Sunshine and can I have a raise now?) in a lively, clever and nonsensical satirical chase, though how funny you find it will depend on how well you know the names. Those who've been trapped in the Goblin's Dungeon or been to a Microfair should at least smile.

Interestingly, it is not only imaginatively Quilled but must also be one of the first commercial games to have used Gilsoft's *Illustrator*, and in doing so sets a high standard (though even a graphic cannot capture the true horror of Sunshine Towers). It's a bargain, so buy it and you too can experience the thrill of meeting Graham Taylor.

John Minson

Exciting

Program *Air Defence* **Price** £5.95 **Micro** Spectrum 48K **Supplier** Cases Computer Simulations, 14 Langton Way, London SE3 7TL

CCS dominate the wargame market and their new offering has much to attract both experienced players and relative newcomers as it offers five levels of difficulty. Quite simply you command air defences for a coast line, guarding industry, airfields, radar, etc, and scrambling squadrons of fighters, early warning planes and tankers while enemy bombers attack from the east.

Quite simply, I say, but keeping your planes airborne is rather like juggling, as they tend to return to base for refuelling just when they're needed. You have two displays, a map and a record of plane status which handles most of the book-keeping, though you may still need to jot down details before allocating planes from the map.

One common grumble about wargames is that they're slow. Not this one! Time segments tick away alarmingly and you must be prepared because when the invasions starts you hardly have time to think. There is a pause control though for those of a nervous disposition (and cheats).

Air Defence is challenging and exciting to play despite its complexity, and has the rare advantage of being a single player game. It's price is reasonable too. I do find the clinical nature of the wholesale slaughter of modern warfare frightening though, even if it is only a game.

John Minson

Irritating

Program *Rollerball* **Micro** Amstrad CPC464 **Price** £6.95 **Supplier** Timeslip Software, Stoneyburn Workshops, The Old Primary School, Main Street, Stoneyburn, West Lothian, Scotland.

This is not only a difficult game to classify it is also a difficult game to play. It is basically a computerised puzzle rather than an arcade game. You are presented with an interlocking maze of tracks along which a

ball slowly rolls obliterating all the pieces it has passed over. You play the difficult part of a large square thing that moves around on top of the tracks and that can change the way that they interconnect at the various junctions. The idea is to rearrange the layout so that the ball never reaches the edges or hit an area that it has already wiped out.

Nothing wrong with that, but it is complicated by the fact that the square thing is controlled by the cursor keys which for some reason work in the opposite directions to which they are supposed to. If this is deliberate it doesn't add to the difficulty but just makes it more irritating. I also found that it was very hard to predict or control the way the tracks are rearranged and you very easily get into a situation where there is nothing useful you can do to the ball. Basically a nice idea that doesn't quite work for me. There is also the option of having invisible tracks.

However, extra bonus marks to Timeslip for some very cheerful and user friendly intro and finish screens and some very bouncy music.

Tony Kendle

Zut alors!

Program *Clue's 'O'* **Price** £8.95 **Micro** Spectrum 48K **Supplier** Imperial Software, Imperial House 153 Churchill Road Poole, Dorset

Maintenant I think I have the answer, but premier let moi review les facts. Je suis un famous French detective (which is why je parle en franglais) qui est investigating le murder de Major Fawcett dans cette adventure. I have promenadé all over Chez Fawcett, upstairs, downstairs et dans la chambre de my lady. I have questioned les suspects, collected des clues et even answered le flipping telephone.

Le famille Fawcett sont un nutty bunch. Madame says les plus strange things et le gardener pinches le spade. They avoir une plus grande maison avec many rooms.

Mais, vous say, qu'est que votre judgement? Well, mes petite cauliflowers, je pense that un detective adventure game est un damn good idea, et while je suis no Sherlock (et neither is this game) c'est un grand lot of fun to investigate and deduce rather than tuer les dragons. There's un lot to do before you can name le suspect et, murder weapon.

Le program est entertaining avec des humorous responses et les reaction times sont quite fast mais ce n'est pas 'state du art' et therefore j'accuse the price of preventing it from being un bon buy.

John Minson

Zap-away

Program *Homebase* **Price** £8.95 **Micro** Dragon 32 **Supplies** Cable Software, 52 Limbary Rd, Luton, Beds LU3 2PL

This is a straightforward arcade 'Zap-the-aliens' game. The player is in an irregular shaped field of play called The Laserdome, which he shares with hostile laser balls. The object is to zap the laser balls whilst avoiding contact with them or with the sides of the laserdome. Contact with the sides is lethal and with the laserballs is energy draining.

Once a screen is cleared, the player is returned to the protective 'homebase' whilst the screen is filled by the next wave. The homebase can also be used as a refuge once per game.

The game has a two player option – that is, two players can each play a game individually and their scores are compared. Control is by joystick, with the two player option working from two joysticks.

Two small points. If two players are connected, the "non-player" can sabotage the player by pressing his fire button which disables the player. Also, the resetting of the homebase seemed to be faulty after each alternate game when I played it.

In summary, *Homebase* is a simple arcade game, without either special qualities or demerits, but it looks a little old fashioned and expensive by current standards.

Derrick Trueman

Incomplete

Program *American Football* **Micro** Amstrad CPC 464 **Price** £8.95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood Essex

This is a conversion of the game of the same name for the Spectrum by Argus Press. Inside comes a booklet which aims to give you a crash course in the rules, tactics and terminology of American Football but, fortunately, although interesting and useful if watching Channel 4, most of this can be ignored if you just want to get on with the game. On screen is a top down view of the pitch, or 'the field' to those in the know, on which the teams run around in effective if small, animation. Play is controlled by typing in your choice of tactic at any one time from the menu of defensive or offensive moves available. Your opponent, which can be the 464, then decides upon their move and the computer works out the resulting action without, we are assured, cheating. I don't intend to precis the full rules here but if the offensive team doesn't get the ball more than ten yards down the field in four tries the ball passes to the other side.

Initially very enjoyable as a sporting strategy/simulation, especially as a two player game, but ultimately there is not enough to it to merit top marks. Perhaps some sort of league table, as in *Football Manager*, would have greatly increased longevity of interest. The graphics are also too limited. I know it's not trying to be on a par with Commodore's *International Soccer* but at least they could have included a ball on the screen.

Tony Kendle

Reviews

Marooned

Program *The Island of Xaan* **Price** £7.95 **Micro** BBC B **Supplier** Robico Software, 3 Fairland Close, Llantrisant, Mid Glamorgan CF7 8QH

Robert O'Leary has come up with a colourful text adventure with a slightly unusual scenario. You start in Xaan's jail cell and have to escape, adopt a suitable disguise and finally make your way off the island.

You are in a small, dimly lit prison cell, filled with the stench of death and decay. The smooth, granite walls seem to close in on you, windowless and menacing! To the north looms a huge, iron door.
The door is closed. The only visible exit is north.
You find an alcove.

The game has most of the familiar puzzles of adventures including a twisty maze where reversing direction may not get you back to where you began!

The locations are described in plenty of detail – and as a boon the spelling is pretty fair too!

Hints in the text that are well worth noting extremely carefully – for example, when you escape from the cell you're warned that you are freezing cold. If you don't find and wear a cloak pretty quickly – well, you can't say you weren't warned. The package comes complete with a notebook for you to keep track of your wanderings.

Seasoned adventurers may find the routine a little predictable, but there's plenty to enjoy on *The Island of Xaan* for newcomers.

Jan Watterson

Infra-red

Program *F-15 Strike Eagle* **Micro** Commodore 64 **Price** £14.95 **Supplier** US Gold, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY

Yet another game from the good old US of A, and what a patriotic one at that!

Not only do you get the American flag on the screen, the computer churns out tunes like *Yankee Doodle Dandy* and the American national anthem while it's loading.

That apart, *F-15 Strike Eagle* is, in fact, a very sophisticated flight simulation. Not only do you have to fly the F-15, you also have to manage its information and weapons systems. F-15 also simulates the modern air combat environment with numerous enemy aircraft, radar-guarded missiles, infra-red missiles and ground targets. Fortunately, the pilot is assisted by an impressive array of computer-controlled information display systems. These include a "heads-up" display which projects target and threat tracking information, navigational cues and status messages. Maps, variable resolution radars and a graphic weapons' status display (a diagram showing the missile and bomb load remaining) are also available.

The 'up-front control' in this simulation is the keyboard, and believe me when I say that, while a joystick is used as the control stick, almost every key can be used to activate something or other – you can even bail out.

Anyone prepared to spend time getting used to the aircraft controls should certainly enjoy this complex simulation. Not a game for 'amateur' pilots, though.

Tom Hussey

Drunken

Program *Quack a Jack* **Micro** Amstrad CPC464 **Price** £8.95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex.

"*Quack a Jack* is based loosely on situations and characters in the fantasy role playing game *Fandonia* by Steve Cox" it says on the cassette inlay. What are they on about? It is just a version of that old arcade game called *Timebomb* or something similar on various micros. It involves jumping about from tile to tile on a screen trying to reach a bomb (in this case a Terradactile's egg) before it goes off (or hatches). Wherever you have walked the tiles disappear and it thus becomes harder to find your way about but you can scroll any row of them from side to side and make use of the wraparound screen. To complicate things, there are static hazards to negotiate.

It is only the viciousness and originality of forms that the monsters take that give this Amsoft game any sort of an edge over the other versions. Here you begin with vampire rabbits and proceed to go through 16 different levels including such wonders as drunken prawns and space hoppers. I did think, however, that the inclusion of a little music would not have gone amiss. On the whole it is a pretty reasonable version of a pretty reasonable game – but there's plenty of better things to spend your money on.

Tony Kendle

Torment

Program *Fantasia Diamond* **Micro** Amstrad CPC464 **Price** £7.95 **Supplier** Hewson Consultants Ltd, Hewson House, 56B Milton Trading Estate, Milton Abingdon, Oxon. OX14 4RX

A straight conversion from the deservedly successful Spectrum adventure *Fantasia Diamond* is guaranteed to give 464 users a pretty rough time over the next few months. It is a fiendishly difficult graphic adventure which owes a lot to Melbourne House's classic *Hobbit* in that it features independent characters 'each with his own life and personality and who will help or hinder you depending on how they feel at the time'.

I think I'm right in saying that this is the first adventure to be released for this micro that features these self determinant beings and for that reason alone it should do well. For those who are unfamiliar with this type of game you will be faced with baffling hours of watching people arriving or going south for no apparent reason.

It should be obvious that this is pretty sophisticated stuff and the vocabulary range and language phrasing are also highly advanced with the option of typing in full sentences of commands. Graphics are very large and colourful, although a bit square and blocky, and they draw very very quickly indeed. The plot is suitably unlikely and I'm not going to repeat it – suffice to say you have to retrieve the diamond.

It would be doing this adventure an injustice to pretend that I've come anywhere near solving it or know all its secrets as I'm sure there are weeks, months even, of mental torment ahead for me. Very highly recommended.

Tony Kendle





Dear Reader

18th January 1985

You've probably heard all about **Eureka!**, the '5 games in one' graphic adventure written by Ian Livingstone with a £25,000 prize. No one has yet won it although many of you are extremely close.

The storylines travel through five time zones of our history - Prehistoric, Roman Empire, Medieval Britain, Colditz and the Caribbean, where you come face to face with the evil Hugo Von Berg. He is holding us all to ransom and demands to be made Emperor of the World, otherwise he will destroy it. A secret telephone number direct to the British Prime Minister has been specially installed for you to ring when you have worked out the secret code which will save us all. You must find this code and decipher the telephone number.

The **Eureka!** Hotline number is.

01-460 1115

Ring this at any time to witness Von Berg's evil progress and to check that the prize is still available.

We wish you all the best of luck in your search and to help you on your way, will send you a FREE Guide to Adventure Games (no clues to the £25,000 though!) if you send in a stamp plus your name and address to us.

Happy searching!

Mark Strachan   Dominic Wheatley

Managing Directors

DOMARK LTD, 204 WORPLE ROAD, LONDON SW20 8PN

Shades of grey

Ever wanted a really big copy of your favourite screen? Try this m/c utility for Spectrum 48K by ***A S Burnham***

This is a machine-code routine which produces a 15×10 inch screen copy, in four strips, with colour represented as shades of grey.

To use it, either type in the assembly listing into an assembler, or use the decimal loader to input the machine-code bytes. Save it using, *Save "Big Copy" Code 30000,320* To produce the copy, load the desired picture to the screen, and type *Randomise Usr 30000* Once the printer has finished, tear off the paper and paste the sections together on card for the best results.

The routine works by looking at each pixel in turn, and representing it as a shaded block of 4×4 pixels on the printer, using its *Ink* or *Paper* colour to determine the shade.

Assembler Notes

20-30	Set store of screen and attribute file
40-110	Store nested loops – 4 columns each with 192 screen rows, each consisting of 8 bytes across, each byte in 2-pixel sections.
120-170	Take far left-hand pixel, and decide whether it is set or reset.
180-290	If set, use ink colour. If reset use paper colour
300-320	Take right hand pixel, and decide whether it is set or reset
330-410	If set use ink colour. If reset use paper colour
420	Work out shade of grey from data
430	Put data into printer buffer for printing
440-710	Shift round byte to expose next two pixels and complete loops
720-770	Output to printer
780-990	Shift down a screen row, and then across the four columns
1000-1570	Subroutines
1580-1880	Data for printer shades

```
  1 REM Decimal loader
  2 REM
  3 REM Use this to input
        Machine-Code bytes.
  4 REM
 10 CLEAR 29999
 20 FOR f=30000 TO 30320
 30 INPUT (f);i
 40 PRINT f;i
 50 POKE f,i
 60 NEXT f

Machine-Code bytes
30000  243 17 0 88 33
30005  0 64 6 4 14
30010  192 197 229 213 221
30015  33 0 91 6 8
30020  14 4 126 197 245
30025  79 203 121 40 11
30030  26 230 7 205 218
30035  117 205 235 117 24
30040  15 26 203 63 203
30045  63 203 63 230 7
30050  205 218 117 205 235
30055  117 203 113 40 11
30060  26 230 7 205 218
30065  117 205 11 118 24
30070  15 26 203 63 203
30075  63 203 63 230 7
30080  205 218 117 205 11
30085  118 221 35 241 7
30090  7 193 13 32 184
30095  19 35 16 177 209
30100  225 193 121 197 229
30105  230 7 254 1 32
30110  6 1 32 0 235
30115  9 235 225 222 213
30120  33 0 91 6 4
30125  197 006 244 14 193
30130  16 240 62 4 211
30135  251 209 229 213 205
30140  39 118 209 193 13
30145  194 59 117 197 1
30150  240 2 175 235 237
30155  66 235 1 210 23
30160  175 237 66 193 8
30165  194 57 117 251 201
30170  71 4 253 33 57
30175  118 053 35 253 36
30180  253 35 253 35 16
30185  240 001 201 220 213
30190  6 4 203 126 0
30195  203 39 203 30 203
30200  39 203 39 221 119
30205  0 17 32 0 221
30210  25 203 35 16 233
30215  209 221 225 201 201
30220  229 213 6 4 253
30225  126 0 221 65 0
30230  170 221 118 0 17
30235  32 0 221 25 253
30240  35 16 237 209 221
30245  225 201 124 230 7
30250  254 7 40 2 35
30255  201 120 230 224 254
30260  224 40 7 17 224
30265  6 167 237 32 201
30270  124 254 87 200 17
30275  32 0 25 201 15
30280  15 15 15 7 13     30305  4 0 0 0 0
30285  7 15 10 13 7      30310  0 0 0 0 0
30290  13 13 10 5 11     30315  0 0 0 0 0
30295  10 5 10 5 5       30320  0 0 0 0 0
30300  2 0 2 2 0         30325  0 0 0 0 0
```

```
L 0 10000 1000
00000 ,ZEUS ASSEMBLER LISTING
00001 ,
00005          ORG 30000
00010          DI
00020          LD DE,22528 ,Attrs.
00030          LD HL,16384 ,Screen
00040          LD B,4 ,Columns
00050 NCOL     LD C,192 ,Rows
00060 NROW     PUSH BC
00070          PUSH HL
00080          PUSH DE
00090          LD IX,23296 ,P.Buff
00100          LD B,8 ,No.of scans
00110 NBYTE    LD C,4 ,2 Pixels
00120          LD A,(HL) ,Get byte
00130 N2BIT    PUSH BC
00140          PUSH AF
00150 BIT0     LD C,A ,Left-hand
00160          BIT 7,C ,Bit I or P
00170          JR Z PAP0
00180 INK0     LD A,(DE) ,Work out
00190          AND 7 ,shade
00200          CALL CALIY
00210          CALL DATPB0
00220          JR BIT1
00230 PAP0     LD A,(DE) ,Get attr
00240          SRL A
00250          SRL A ,Divide by 8
00260          SRL A ,for Paper
00270          AND 7
00280          CALL CALIY
00290          CALL DATPB0
00300 BIT1     BIT 6,C ,Repeat for
00310          JR Z,PAP1 ,Right-
00320 INK1     LD A,(DE) ,hand bit
00330          AND 7
00340          CALL CALIY
00350          CALL DATPB1
00360          JR END
00370 PAP1     LD A,(DE)
00380          SRL A
00390          SRL A
00400          SRL A
00410          AND 7
00420          CALL CALIY
00430          CALL DATPB1
00440 END      INC IX
00450          POP AF
00460          RLCA ,Rotate A to
00470          RLCA ,work on next
00480          POP BC ,two bits
00490          DEC C
00500          JR NZ,N2BIT
00510          INC DE
00520          INC HL
00530          DJNZ NBYTE
00540          POP DE
00550          POP HL
00560          POP BC
00570          LD A,C
00580          PUSH BC
00590          PUSH HL
00600          AND 7
00610          CP 1
00620          JR NZ,MISS
00630          LD BC,32
00640          EX DE,HL
00650          ADD HL,BC
00660          EX DE,HL
00670 MISS     POP HL
00680          PUSH HL
00690          PUSH DE
00700          LD HL,23296
```

```
        LD B,04
COPY1   PUSH BC
        CALL #0EF4,ROM copy
        POP BC    ,routine
        DJNZ COPY1
        LD A,04
        OUT (#FB),A,Printer
        POP DE     ,off
        POP HL
        PUSH DE
        CALL S0,Down a scan
        POP  DE
        POP BC
        DEC C
        JP NZ NROW
        PUSH BC
        LD BC,760
        XOR A
        EX DE,HL
        SBC HL,BC
        EX DE,HL
        LD BC,6104
        XOR A
        SBC HL,BC
        POP BC
        DEC B
        JP NZ,NCOL
        EI
        RET
;Routine to calculate
;shade and point IY to it
CALIY   LD B,A
        INC B
        LD IY,DATA-4
BACK    INC IY
        INC IY
        INC IY
        INC IY
        DJNZ BACK
        RET
;Routine to store shade
;data in Printer buffer
DATPB0  PUSH IX
        PUSH DE
        LD B,4
PROW    LD A,(IY)
        SLA A
        SLA A
        SLA A
        SLA A
        LD (IX),A
        LD DE,32
        ADD IX,DE
        INC IY
        DJNZ PROW
        POP DE
        POP IX
        RET
DATPB1  PUSH IY
        PUSH DE
        LD B,4
PROX    LD A,(IY)
        LD D,(IX)
        OR D
        LD (IX),A
        LD DE,32
        ADD IX,DE
        INC IY
        DJNZ PROX
        POP DE
        POP IY
        RET
;Down a scan in screen
;memory  VERY USEFUL
S0      LD A,H
        AND 7
        CP 7
        JR Z,ENLI
        INC H
        RET
ENLI    LD A,L
        AND #0E0
        CP #0E0
        JR Z,ENSE
        LD DE,#00E0
        AND A
        SBC HL,DE
        RET
ENSE    LD A,H
        CP #57
        RET Z
        LD DE,#0020
        ADD HL,DE
        RET
;Data for each shade,from
;White to Black (4x4)bits
DATA    DEFB 15,15,15,15
        DEFB 7,13,7,15
        DEFB 10,13,7,13
        DEFB 13,10,5,11
        DEFB 10,5,10,5
        DEFB 5,2,5,2
        DEFB 2,0,4,0
        DEFB 0,0,0,0
```

Bits and pieces

A traditional puzzle for the BBC B and Electron from Messers J and R Wright of Pro-Supply Ltd

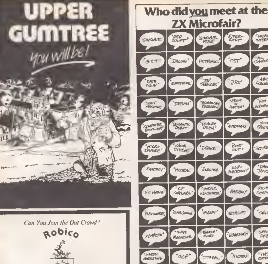
This is a program for the Electron or BBC B in which a traditional 'sliding-block' puzzle is created. On running the program, the computer will draw a scenic picture of a castle on a hill with one blank space, then on your command proceeds to jumble it up on a four by four grid.

When the computer has finished this task, a white outline will appear around one of the blocks. You move this outline about the grid using the cursor keys, its function being to nominate the particular block you wish to be 'slid' into the blank position, (to do this you press *Return*).

Upon exasperation, press *Escape* to restart the program. It's tougher than it looks. Good luck!

```
10 ON ERROR GOTO 1300
20 MODE2
30 PROCassemble
40 PROCpic
50 PROCplay
60 END
70
80 DEFPROCpic
90 COLOUR6:PRINTTAB(3,5)"SLIDING-BLO
  CK"TAB(7,7)"PUZZLE"
100 COLOUR1:PRINTTAB(2,12)"By J & R
  Wright"
110 COLOUR5:PRINTTAB(0,22)"(C) Pro-
  Supply Ltd."
120 G=INKEY(1000):CLS
130 VDU23,254,0,224,152,24,7,1,0,0
140 VDU23,255,&707;&707;7;0;
150 VDU24,320;256;960;896;
160 GCOL0,134:CLG
170 GCOL0,3
180 PROCCIR(880,816,32)
190 GCOL0,4
200 MOVE 448,712:DRAW448,800:DRAW560,
  800
210 DRAW560,776:DRAW708,776:DRAW708,
  800
220 DRAW820,800:DRAW820,712
230 VDU5:FORA%=408 TO 504 STEP 32
240 MOVEA%,816:VDU255
250 MOVEA%+256,816:VDU255
260 MOVEA%+112,792:VDU255:NEXT
270 MOVE648,792:VDU255,4
280 FORA%=712 TO 800 STEP 4
290 PLOT77,552,A%:PLOT77,808,A%
300 NEXT
310 GCOL0,0
320 FORA%=0 TO 256 STEP 256:VDU29,A%;
  0;
330 MOVE 480,720:DRAW480,748
340 DRAW496,764:DRAW512,764:DRAW528,
  748
350 DRAW528,724:NEXT:VDU29,0;0;
360 GCOL0,2:PROCCIR(640,16,720)
370 MOVE0,576:GCOL0,0:DRAW1280,576
380 GCOL0,128
390 FORY=0 TO 5 STEP 0.25:MOVE328,480
  -(Y*16):DRAW752,500-(Y*16):NEXT:GCO
  L0,7:FORY=0 TO 5:MOVE328,480-(Y*16)
  :DRAW952,500-(Y*16):NEXT
400 FORY=480 TO 400 STEP-4:X=328:B=0:
  REPEAT:FORZ=1 TO 2:PLOT69,X,Y+B:X=X
  +40:NEXT:B=B+3.3:UNTILB>30:NEXT
410 FORY=0 TO 3 STEP0.5:GCOL0,1:MOVE
  328,400-(Y*16):DRAW952,420-(Y*16):G
  COL0,3:MOVE328,400-((Y+0.25)*16):D
  RAW952,420-((Y+0.25)*16):NEXT
420 GCOL0,0:MOVE400,860:VDU5,254:MOV
  E840,824:VDU254,4
430 GCOL0,0
440 FORX=320 TO 960 STEP160:MOVEX,256
  :DRAWX,896:NEXT
450 FORY=256 TO 896 STEP160:MOVE320,Y
  :DRAW960,Y:NEXT
460 GCOL0,0
470 FORY%=256 TO 416 STEP 4
480 MOVE800,Y%:DRAW960,Y%
490 NEXT
500 E%=3:F%=3
510 COLOUR2:PRINTTAB(0,29)"PLEASE PRE
  SS ANY KEY"
520 B=GET
530  PRINTTAB(0,29)SPC(20)
540 ENDPROC
550
560 DEFPROCCIR(X%,Y%,R%)
570 VDU29,X%;Y%;
580 FORP=0 TO 360 STEP8
590 N=P*PI/180
600 X=R%*SINN
610 Y=R%*COSN
620 IFP=0 MOVEX,Y
630 MOVE0,0:PLOT85,X,Y
640 NEXT
650 VDU29,0;0;
660 ENDPROC
670
680 DEFPROCMOVE(X1,Y1)
690 LOCAL A%,B%
700 A%=&3AA0+Y1*&CB0+X1*&50
710 D%=&3AA0+F%*&CB0+E%*&50
720 IF X1=E% AND Y1=F% ENDPROC
730 IF ABS(E%-X1)>1 OR ABS(F%-Y1)>1
  ENDPROC
740 IF X1<>E% AND Y1<>F% ENDPROC
750 ?&70=A%:?&72=D%:CALL SWAF
760 E%=X1:F%=Y1
770 ENDPROC
780
790 DEFPROCplay
800 R=RND(-TIME)
810 FORA%=0 TO 500
820 PROCMOVE(RND(4)-1,RND(4)-1)
830 NEXT
840 X%=0:Y%=0:PROCcursor(X%,Y%)
850 VDU5
860 *FX4 1
870 REPEAT
880 G=GET
```

```
 890 PROCcursor(X%,Y%)
 900 IF G=136 AND X%>0 X%=X%-1
 910 IF G=137 AND X%<3 X%=X%+1
 920 IF G=138 AND Y%<3 Y%=Y%+1
 930 IF G=139 AND Y%>0 Y%=Y%-1
 940 IF G=13 PROCMOVE(X%,Y%)
 950 PROCcursor(X%,Y%)
 960 UNTIL FALSE
 970 ENDPROC
 980
 990 DEFPROCcursor(X,Y)
1000 GCOL3,7
1010 A%=320+X*160:B%=896-Y*160
1020 MOVEA%,B%:DRAWA%+160,B%
1030 DRAWA%+160,B%-160
1040 DRAWA%,B%-160
1050 DRAWA%,B%
1060 ENDPROC
1070
1080 DEFPROCassemble
1090 DIM Z% 100
1100 FOR pass=0 TO 2 STEP 2
1110 P%=Z%
1120 [OPT pass
1130 .SWAP LDX£4
 140 .loop1
1150 LDY£&4F
1160 .loop2
1170 LDA(&70),Y:STA(&72),Y
1180 LDA£0:STA(&70),Y
1190 DEY:BPL loop2
1200 LDA£&80:CLC:ADC&70:STA&70
1210 LDA£2:ADC&71:STA&71
1220 LDA£&80:CLC:ADC&72:STA&72
1230 LDA£2:ADC&73:STA&73
1240 DEX:BPL loop1
1250 RTS
1260 ]
1270 NEXT pass
1280 ENDPROC
1290
1300 IF ERR=17 RUN
1310 MODE7:*FX4
1320 REPORT:PRINT" at line ";ERL
1330 END
```



UPPER GUMTREE
you will be!
Who did you meet at the ZX Microfair?
SINCLAIR
"RED SHIFT"
"SINCLAIR USER"
"EIDERSOFT"
"MICRO INTERFACE"
"GST"
"IALUG"
DKTRONICS
"CST"
AC COMPUTER
"DATA VIEW"
"SOFTSTONE"
"TV SERVICES"
"JRS"
ABC ELECTRONICS
SOFT MACHINE
"DREAM"
TECHNOLOGY RESEARCH
"PRINT N PLOTTER"
"FOX ELECTRONICS"
"COMPUTER BOOKSHOPS"
"ROMANTIC ROBOT"
"DEALER DEALS"
"AUTOMATA"
YOUR SPECTRUM
"MICRO SPHERE"
"SAGA SYSTEMS"
"DRAKE"
BOOT OUT
"PICTURESQUE"
"FANTASY"
"MISTRAL"
"ELECTRA"
EURO ELECTRONICS
"DAVID JACKSON"
UK HOME
CP SOFTWARE
"NORDIC KEYBOARDS"
"BAGANI"
RICHARD SHEPHERD
FLEXIWORDS
"COMPUSOUND"
"HISOFT"
"WETASOFT"
"ORION"
KEMPSTON
"HOME MAGAZINE"
BUFFER MICRO
"TRANSFORM"
SPECTA DRAW
"MARTIC MARKETING"
"OCP"
"CITADEL"
"HILTON"
"IMS SOFTWARE"
"FROGSOFT"
"ADDER PUBLISHING"
CHALLENGE
ADVANCED MEMORY
"CLPS"
"OASIS"
"LCL"
SCISOFT
"SIMON SOFTWARE"
WIDGET
"ELECTRIC SOFTWARE"
"COBOLT SYSTEMS"
"THE NEXT ZX MICROFAIR IS ON 8 FEBRUARY 1985 AT ALEXANDRA PALACE. COME ALONG AND SEE EVERYTHING NEW FOR THE SPECTRUM AND QL!"

I was framed!

Graphic windows for the 64 (with Simon's Basic) for your entertainment from ***Adrian Warman***

The concept of 'windows' has been described at length in various publications, but such descriptions tend to concentrate on their use, particularly with regard to textual applications. The aim of this article is to present and describe a routine for enabling graphics to behave in a window-like environment. The coding is written in as standard a version of Microsoft Basic as possible, but inevitably, some graphics commands are needed, and these are taken from the Simon's Basic extension language for the Commodore 64 However, only two such commands are used. Full notes are given for the (easy) conversion of the program to other languages and/or micros

A window is a computer-controlled area on the screen which will appear, can be written-to and read-from, and can then disappear without any apparent damage to any information underlying the window area. In the case of graphics this description remains valid except of course that the information presented can also be diagrammatic rather than textual only In this article you will see how we can produce a graphic window effect on an ordinary home micro

For our purposes, it is assumed that the User program will be drawing lines in a given pattern on the screen Each call to the line drawing routine (either a procedure or a language command) is replaced by a call to the window routine This routine will convert the given coordinates within the window, and proceed to draw the resulting line (if there is one) There are three cases to consider

1) The line is completely within the window, and so will be drawn in its entirety
2) The line is partially outside the window, and must be trimmed before drawing.
3) The line is completely outside the window, and so will not appear at all

The given routine will handle all of these cases If you wish to draw single points, you will have to check these as seperate cases, since the aim of the given routine is to trim a distant line

In order to use the routine, you do not need to know how it works, but simply obey three rules Firstly the window to be used must be rectangular, and have its parameters specified in *XL%*, *XR%*, *YB%* and *YT%* (see table detailing variables used). Secondly, the line to be drawn must have the endpoints specified in *XA%*, *YA%*, *XZ*, and *YZ%*. Finally, replace each line drawing instruction with a call to the window routine, having defined all parameters as above

As examples, to create a window that uses the entire screen, define: *XL% = 0, XR% = 319, YB% = 0, YT% = 199* To define a window in the centre of the screen *XL% = 80, XR% = 240, YB% = 50, YT% = 150* You may like to replace Lines 1140-117- inclusive in the given listing (which currently define random windows) with the above codings, in order to study the routine under more controlled circumstances

The complete theory behind the routine is rather complicated, and will be of interest to only certain readers, most others preferring to simply it as it is without modification (in practice, no alterations should be needed owing to the generalised nature of the routine). However, a brief explanation of how the trimming of each line is performed may be useful when optimising the routine for a specific application.

The trimming theory follows from a simple mathematical axiom. Given a right-angled triangle T, that is, a triangle with one angle of 90 degrees (see diagram 1), then the ratios B/A and D/C are equal. Thus, if we know that A = 10, B = 5 and C = 3, then the value D will be 1 6

If you doubt this, try drawing it using pencil and paper, and then measure it for yourself

If we now overlay a 'window' frame W onto this triangle (see diagram 2), and we know the parameters of the window and of the line, we can calculate how much to trim the line to find the new point *(x',y')* For a more detailed consideration of this property of triangles, you should consult a mathematics text-book!

Diagram 1

Diagram 2

Program Notes

You might find it helpful to refer to the listing while following these notes

- 1031 — The listing (as it is given) produces random windows This statement will 'seed' the Random Number generator to give a good example sequence However, the use of this line is strictly optional, and it can be removed with no effect on the main routine
- 1040-1080 — These lines define the dimensions of the CBM 64 graphic screen For other machines with different screen sizes simply change these values to correct the entire program.
- 1260-1080 — Set the entire screen to black with green text Not strictly necessary, but this produces a clearer display
- 1080 — Switch to the High resolution display (using Simon's Basic) with foreground colour green on a black background
- 1100 — Define a random number generator Many computers produce random numbers in the range 0 to 1 This function using argument 'X' will produce an integer number in the range 0 to X-1
- 1140-1260 — Continuous demonstration program.
- 1140-1170 — Define a graphics window of random size and location If you prefer, replace these lines with suitable assignments as described above
- 1180 — This call is to a subroutine which will clear the area of the screen where the window will appear If you do not include this the effect of the window is less easy to see
- 1190-1250 — These lines are the coding to produce one of the most elementary graphics display, often used to produce a 'tunnel-like' effect.
- 1240 — This is the important line! It calls the window routine, which will trim the described line depending on

the defined window. If you wish to see the pattern that is drawn by Lines 1190-1250 in its entirety, replace Line 1240 with: 1240 LINE XA%, YA%, XZ%, YZ%,1

1260 This line makes the main code repeat until you stop the program yourself!

1300-1580 These lines will blank out any data that is where the window is currently defined. Some languages provide a block *fill/clear* routine, which will be faster.

1321-1324 An optional extra. These lines will draw a frame around the defined window area, which makes it much easier to see.

1370-1740 The window routine. This is rather complicated to completely dissect, and so only a brief description of the main sections is provided.

1370-1400 Make working copies of the coordinates of the line to be drawn; these values can then be tinkered with safely.

1410-1470 The first stage of trimming is to fit the line into the vertical bar which contains the window. We must assume that the line is being drawn from left to right in order to trim it correctly and these program lines assure that the line is being drawn in the correct direction.

1480 If the line does not appear anywhere within the vertical bar, then trimming will have no effect. The line will never be drawn, so finish now.

1490-1520 Does the line stick out of the left hand edge of the window? If so trim it (Lines 1500-1520)

1530-1560 Does the line stick out of the right hand edge of the window? If so, trim it (Lines 1540-1560)

1570-1630 At this stage the line now fits completely within the vertical bar that contains the window. We now repeat the process for the corresponding horizontal bar. This time, we assume that we are drawing from the bottom to the top of the screen. (Note that in Simons Basic the bottom of the graphics screen – where Y=0 – is at the top of the Physical screen. This is non-standard, but does not affect the algorithm, and merely flips the screen from top to bottom.)

1640 If the line is entirely outside the horizontal bar, then finish, since no trimming can have any effect.

1650-1680 Does the line stick out of the bottom edge of the window? If so trim it (Lines 1660-1680)

1690-1720 Does the line stick out of the top edge of the window? If so trim it (Lines 1700-1720)

1730 At this stage the resulting line has been trimmed as much as necessary, so draw it!

1740 End of routine.

Variables Used: Main Program.

GW	Width of graphics display on the screen. On the CBM 64 this is 320 points. Alter this value if your micro has a different number of horizontal pixels
GH	Depth of graphics display on the screen. On the CBM 64 this is 200 points. Alter this value if your micro has a different number of vertical pixels

Variables Used: Input to routine.

XR%	Rightmost X-value of the Window (as integer value)
XL%	Leftmost X value of the Window (as integer value). Should be less than XR% to make sense!
YT%	Topmost Y-value of the Window (an integer value)
YB%	Bottom-most Y-value of the Window (as integer value). Should be less than YT% to make sense!
(XA%,YA%)	Starting co-ordinates of the line to be drawn.
(XZ%,YZ%)	End co-ordinates of the line to be drawn.

Variables used. Routine working store.

XS%	Working/Result copy of XA% (X-start)
YS%	Working/Result copy of YA% (Y-start)
XD%	Working/Result copy of XZ% (X-destination)
YD%	Working/Result copy of YZ% (Y-destination)
TM% & TM	Temporary stores while swapping values over, and for calculating by how much to 'trim' lines

Machine Dependent Commands

Finally, for those of you keen on conversion here are the machine dependant commands used within the program, that you must change.

RND (<negative number>) – Seeds the random number generator, so that a known 'pseudo-random' number sequence will follow.

Poke 53280,x – Sets the border of the screen to colour X. On the CBM 64 there are 16 colours (0 to 15)

Poke 53281,x – Sets the background of the screen to colour X

Print CHR$(30) – Sets the text colour to green

Hires 5 0 – Switches on and clears the High-resolution display with foreground colour 5 (= green) and background colour 0 (= black). The screen then has 320 pixels across and 200 pixels down.

Line a,b,c,d,x – Draws a line from (A,B) to (C,D) depending on the value of X. If X is zero, then all points on the line are Reset to the background colour and when x = 1 all points on the line are set to the foreground colour.

```
1000 rem graphics windows
1010 :
1020 rem by a.warman.
1030 :
1031 x=rnd(-32767)
1040 gw=320
1050 gh=200
1060 poke 53280,0
1070 poke 53281,0
1080 print chr$(30)
1090 hires 5,0
1100 def fnr(x)=int(rnd(1)*x)
1110 :
1120 rem main program loop
1130 :
1140 xr%=fnr(gw)
1150 xl%=fnr(xr%)
1160 yt%=fnr(gh)
1170 yb%=fnr(yt%)
1180 gosub 1300
1190 for i=0 to (gw-1) step fnr
(8)+4
1200  xa%=i
1210  ya%=0
1220  xz%=(gw-1)-i
1230  yz%=gh-1
1240  gosub 1370
1250 next i
1260 goto 1140
1270 :
1280 rem blank frame.
1290 :
1300 for j=xl% to xr%
1310  line j,yb%,j,yt%,0
1320 next j
1321 line xl%,yb%,xr%,yb%,1
1322 line xl%,yt%,xr%,yt%,1
1323 line xl%,yb%,xl%,yt%,1
1324 line xr%,yb%,xr%,yt%,1
1330 return
1340 :
1350 rem main drawing routine.
1360 :
1370 xs%=xa%
1380 ys%=ya%
1390 xd%=xz%
1400 yd%=yz%
1410 if xs%<xd% then goto 1490
1420 te%=xs%
1430 xs%=xd%
1440 xd%=te%
1450 te%=ys%
1460 ys%=yd%
1470 yd%=te%
1480 if not(xd%>xl% and xs%<xr%)
then return
1490 if not(xl%>xs%) then goto
1530
1500 tm=(xl%-xs%)/(xd%-xs%)
1510 ys%=(yd%-ys%)*tm+ys%
1520 xs%=xl%
1530 if not(xr%<xd%) then goto
1570
1540 tm=(xd%-xr%)/(xd%-xs%)
1550 yd%=yd%-(yd%-ys%)*tm
1560 xd%=xr%
1570 if ys%<yd% then goto 1640
1580 te%=ys%
1590 ys%=yd%
1600 yd%=te%
1610 te%=xs%
1620 xs%=xd%
1630 xd%=te%
1640 if not(yd%>=yb% and ys%<=yt
%) then return
1650 if not(yb%>ys%) then goto
1690
1660 tm=(yb%-ys%)/(yd%-ys%)
1670 xs%=(xd%-xs%)*tm+xs%
1680 ys%=yb%
1690 if not(yt%<yd%) then goto
1730
1700 tm=(yd%-yt%)/(yd%-ys%)
1710 xd%=xd%-(xd%-xs%)*tm
1720 yd%=yt%
1730 line xs%,ys%,xd%,yd%,1
1740 return
```

Planned out

*This week the concluding installment of Mini-planner by **A Beadle***

This week we continue by looking at the functions of the main procedures in the main program, and List Two needed to print the *Planner* out to an Epson RX80

Procedures

new-year – initially sets *inf$* to '000. Jan 1st is entered as a minimum of two letters, the second of these must be lower case – eg 'Tuesday' or 'tu' will do. Good Friday has also to be given and then all Sundays change *inf$* to "111" and all Bank Holidays to '222 Bank Holiday', (English Bank Holidays). The permanent data in '???-data' is also read and arranged in the correct form by *arrange*

display – sets windows and determines whether to print months or year

p-year and *p–year* – written in a style determined by the possibility of out-putting to a printer; hence the use of p, t and nl for Print, Tab and New-line. Case 0.0 copes with the display on my two televisions

start-month – finds the day of the last of each month and inserts it in the zero elements of array *cal*.

a-data – allows new data to be added on any particular day

para-data – is the procedure which reads and acts on the data at Line 5000

arrange – as mentioned previously is the procedure which arranges the elements of *inf$* in the required form.

monthly and *cal month* – repeat insertions at intervals of 4 weeks or calendar month respectively. They both use *options* to enter the information.

key1 and *key2* – information printed at the bottom of displays

List 2

The second program is the extra lines and modified lines necessary to print an Epson RX80 printer. The programme could be entered separately and then merged. If this is not required, the 1st program could be entered using *Auto*. *Chr$(134)* is a vertical line, *chr$(138)* is a grey square and *chr$(140)* is a black square

There are limits to the program. If both 4 week and monthly periods are used in the same file they may over write one another. If two events occur on the same day, I suggest putting one of them in the next day and starting the data with '. While the program is running it can (as all programs) be paused by pressing *Ctrl* and toggling with *F5*

If at any time an error occurs, input *menu* and run, and you should be back in the loop

```
2530 REMark [illegible]
2540 DEFine PROCedure start_month
2550 cal(m,0) = ((first + 1) MOD 7): IF cal(m,0) = 0: cal(m,0) = 7
2560 FOR i = 1 TO month(m): cal(m,i+first) = i
2570 first = (first + 1) MOD [illegible]
2580 END DEFine
2590 REMark
2600 DEFine PROCedure p(p$)
2610 PRINT #3 , p$;
2620 END DEFine
2630 REMark
2640 DEFine PROCedure t (num)
2650 PRINT #3, FILL$(" ",num);
2660 END DEFine
2670 REMark
2680 DEFine PROCedure nl
2690 PRINT #3,CHR$(10);
2700 END DEFine
2710 REMark
2720 DEFine PROCedure y_or_n
2730 PRINT "Y or N"
2740 REPeat y
2750 q$ = INKEY$(-1)
2760 IF q$ = "y" THEN yes = 1: EXIT y
2770 IF q$ = "n" THEN yes = 0: EXIT y
[illegible]
[illegible] RETurn
[illegible] END REPeat y
[illegible] END DEFine
[illegible] REMark [illegible]
[illegible] DEFine PROCedure load_data
[illegible] CLS: AT [illegible]: PRINT "LOADING DATA"
[illegible] OPEN_IN #5, file_name$
[illegible] INPUT #5, [illegible]
[illegible] INPUT #5, [illegible]
[illegible] FOR [illegible] TO 12
[illegible] FOR [illegible] TO 30
[illegible] INPUT #5, cal(month,day)
[illegible] END FOR day
[illegible] END FOR month
[illegible] FOR month = [illegible] TO 12
[illegible] FOR day [illegible] TO 30
[illegible] INPUT #5, inf$(month,day)
[illegible] END FOR day
[illegible] END FOR month
[illegible] CLOSE #5
[illegible] CLS: menu
[illegible] END DEFine
[illegible] REMark
[illegible] DEFine PROCedure save_data
[illegible] CLS [illegible] PRINT "[illegible]": INPUT "What file name do you want [illegible]"; [illegible]
[illegible] LET file_name$ = [illegible] planner
[illegible] OPEN_NEW #5,file_name$
[illegible] PRINT #5 year
3150 PRINT #5,annee
3160 FOR month = 0 TO 12
3170 FOR day = 0 TO 30
3180 PRINT #5,cal(month,day)
3190 END FOR day
3200 END FOR month
3210 FOR month = 0 TO 12
3220 FOR day = 0 TO 30
3230 PRINT #5,inf$(month,day)
3240 END FOR day
3250 END FOR month
3260 CLOSE #5 : menu
3270 END DEFine
3280 REMark [illegible]
3290 DEFine PROCedure a_data
3300 CLS
3310 AT 3,0 : PRINT "You are limited to 17 characters ["
3320 PRINT "Two of these should be capitals"
3330 INPUT \\"Which month ? ( 1 to 12) ";m
3340 INPUT "Which day ? "; day
3350 INPUT "What is data ? "; word$
3360 IF LEN(inf$(m,day)) [illegible]: inf$(m,day) = inf$(m,day,1 TO 3)
3370 IF LEN(word$) [illegible]17: BEEP 20000,50: a_data
3380 arrange
3390 PRINT "more data ? "; y_or_n
3400 IF yes
3410 a_data
3420 ELSE
3430 CLS: CLS #3: menu
3440 END DEFine
3450 REMark
3460 DEFine PROCedure para_data
3470 REPeat loop
3480 IF EOF: EXIT loop
3490 READ m , day, word$
3510 IF LEN(word$) [illegible]17: BEEP 20000,50: PRINT word$;"-[illegible] is too Long : STOP
3520 arrange
3530 END REPeat loop
3540 CLS : menu
3550 END DEFine
3560 REMark
3570 DEFine PROCedure arrange
3580 add = cal(m,0)-1
3590 IF add [illegible] : add = 0
3600 FOR i = 1 TO LEN (word$): IF CODE(word$(i)) [illegible] 64 AND CODE(word$(i)) [illegible] 91: inf$(m,day + add,2 ) = word$(i): b = i+ 1: EXIT i
3610 FOR i = b TO LEN (word$): IF CODE(word$(i)) [illegible] 64 AND CODE(word$(i)) [illegible] 91: inf$(m,day + add,3) = word$(i): EXIT i
3620 inf$(m,day+ add) = inf$(m,day + add) & word$
3630 END DEFine
3640 REMark
3650 DEFine PROCedure monthly
3660 options
```

```
[illegible] REPeat loop
[illegible] IF [illegible] EXIT loop
[illegible]
 [illegible] inf$(m,day + add,1) = sym$
[illegible] IF LEN(inf$(m,day + add)) [illegible] inf$(m,day + add) =
 inf$(m,day + add) & repr$
[illegible] day = day + 28
[illegible] IF day > mnth(m)
[illegible] day = day - mnth(m)
[illegible] m = m + 1
[illegible] END IF
[illegible] END REPeat loop
[illegible] CLS: menu
[illegible] END DEFine
[illegible] REMark [illegible]
[illegible] DEFine PROCedure options
[illegible] CLS
3820 AT 3,0: PRINT "   Suitable Symbols  are : \\
 @  *   = +  or a lower case letter
3840 INPUT \\    Which symbol do you pick    "; sym$
385  INPUT \     Which Month to start ? ; m
3860 INPUT \     Which Day to start ? ; day
3870 INPUT  What does Symbol represent (eg Mortgage
 Payment)  ;repr$
3880 IF (LEN(mnem$)  64) AND (LEN(mnem$) + LEN(repr$)
 > 64):mnem$ = mnem$ & FILL$(" ",2 + LEN(repr$))
3890 mnem$ = mnem$ & "  " & "^" & sym$ &  [illegible]
 " & repr$
3900 PRINT      CALCULATING"
3910 END DEFine options
```

```
3920 REMark [illegible]
3930 DEFine PROCedure cal_mnth
3940 options
3950  REPeat loop
3960 IF m > 12 : EXIT loop
3970 add = cal(m,0)-1 + (cal(m,0)= [illegible]
3975 dy = day
3980 IF day > mnth(m): day = mnth(m)
3990 inf$(m,day + add,1) = sym$
4000 IF LEN(inf$(m,day + add)) [illegible]
 + add)  inf$(m,day + add) & repr$
4005 day = dy
4010 m = m + 1
4020 END REPeat loop
4030 menu
4040 END DEFine
4050 REMark [illegible]
4060 DEFine PROCedure key1
4070 t 4: p   C    Car:  V   Van: [illegible] M  Moped [illegible]
4080 t 4: p   -L  Licence:  -I  Insurance: [illegible] M  MOT [illegible]
4090 t 4: p  -B  Birthday:  IT  Income Tax : PI  Property
 Insurance":nl
4100 END DEFine
4110 REMark [illegible]
4120 DEFine PROCedure key2
4130 t 4
4170 PAPER #3,7: t 1: PAPER #3,[illegible]
4190 p "  Sani Holliday   : p mnem$
4200 END DEFine
4210 REMark [illegible]
```

List 2

```
1100 ptr = 0
1110 INPUT   P  for Epson Printer \  Or any other Key for
 Screen ;p$
1120 IF (CODE(p$) =80) OR (CODE (p$) = 112): ptr= 1
1130 IF NOT ptr: OPEN #4,scr_510x30a0x0: INK #4,7: PAPER #4,0:
 WINDOW #4,510x30a0x0 [illegible]
 BSIZE 0,0: OPEN # 3,scr_500x226a0x30:INK #3,7:PAPER #3,0
1150 IF ptr : OPEN #3,ser1
1260 IF ptr: PRINT #3,CHR$(27); [illegible] ;CHR$(2);
1270 IF NOT ptr :CLS #0: CLS #3:INK #4,2:CLS #4:PRINT #4, "
    MINI-PLANNER   ; year
1280 IF ptr:p_o: t 28: p  MINI-PLANNER :p year:nl:nl:p_u
1290 IF ptr: t 5: FOR m = 1 TO 12:p month$(m): p [illegible]
1300 IF ptr: nl
1310 IF NOT ptr:INK #4,4: PRINT #4,       ";:FOR m = 1 TO
 12 : PRINT #4,month$(m);"   ";
1320 IF NOT ptr:PRINT #4
1340 IF NOT ptr: t 2
1480   IF ptr
1490   p CHR$(139)
1500   ELSE
1520   END IF
1540   IF pl:
1550    p CHR$(140)
1560    ELSE
1580   END IF
1600    IF ptr :PRINT #3,CHR$(27); E :
1610    IF NOT ptr: INK #3,4
1630    IF NOT ptr: INK #3,7
1640    IF ptr : PRINT #3,CHR$(27); F ;
1710 IF ptr: p_e
1770 IF ptr: p CHR$(12);
1780 IF NOT ptr: p  Any  Key to continue
1810 IF NOT ptr:CLS #4:CLOSE #4:CLS #3
1870 IF NOT ptr: CLS #3: CLS #4
1900 IF ptr:p_o:t 36: p year:nl:nl: PRINT #3,CHR$(27);
 @ ;: p_u
1910 IF NOT ptr:CLS #0: CLS #3:INK #4,2: CLS #4:PRINT
 #4,FILL$(   ,36);year
1930 IF NOT ptr:INK #4,4:PRINT #4,          ";  FOR m =
 mt TO mt + 2 :PRINT #4,"     ; months(m);"         ";
1940 IF NOT ptr: PRINT #4
1950 IF ptr: t 5: FOR m = mt TO mt + [illegible]: p months$(m):t
 1  : p CHR$(134)
[illegible] IF ptr:nl
[illegible] IF NOT ptr: t 1
[illegible] IF ptr: p CHR$(134)
[illegible] IF ptr
[illegible] p CHR$(139)
[illegible] ELSE
[illegible] END IF
[illegible] IF pl:
[illegible] p CHR$(140)
[illegible] ELSE
[illegible] END IF
```

```
2250 IF NOT ptr: INK #3,[illegible]
2270 IF NOT ptr: INK #3,7
2350 IF ptr: p_o
2370 nl: IF NOT ptr:p  M  for other [illegible]
 or ESC to leave"
2380  IF  ptr: nl:PRINT   M  for other [illegible]
 ESC to leave
2390 IF ptr:p CHR$(12);
2460 IF NOT ptr :CLS #3: CLS #4: CLOSE #4
2670 REMark [illegible]
2680 DEFine PROCedure p_u
2690 PRINT #3  CHR$(27); - ;CHR$(1);
2700 END DEFine
2710 REMark [illegible]
2720 DEFine PROCedure p_o
2730 PRINT #3,CHR$(27); - ;CHR$(0);
2740 END DEFine
4140 IF ptr
4150 p CHR$(140)
4160 ELSE
4150 END IF
```

List 3

```
5000 DATA 1,14, Property Ins.
5010 DATA 1,31,"T.V Licence
5020 DATA 3,6, N.Brookmown Club
5030 DATA 3,7,"Car Insurance
5040 DATA 4,9, Car MOT
5050 DATA 4,30 ,"Moped Licence"
5060 DATA 7,23, Moped MOT"
5070 DATA 8,17,"Van MOT"
5080 DATA 9,12,"Moped Insurance"
5090 DATA 9,30,"Car Licence
5100 DATA 12,31,' Income Tax Due'
5110 DATA 5,14,"Peggy s Birthday"
5120 DATA 3,21,"Dorothy s B/day"
5130 DATA 8,26,'Mervyn s Birthday
5140 DATA 5,12,"Mary s Birthday
5150 DATA 8,29, Lewis s Birthday"
5160 DATA 5,10,'Margaret s B/day
5170 DATA 8,17,'Louise s Birthday
5180 DATA 7,30,'Jennifer s B/day
5190 DATA 4,24, Pauline s B/day'
5200 DATA 9,21,'Elizabeth s B/day
5210 DATA 12,16, Karen s Birthday
5220 DATA 4,1,"Stephen s B/day'
```

Dragon's roar

Zep, Ping, Bleep and Kapow for the Dragon with the help of ***Wayne Smitheon***

When writing your own programs, you often need to include sound effects, and although sound effects in Basic are easy to do, they don't quite match the quality of machine code sound.

For instance, the *Sound* command has two parameters, pitch and duration (length). Not a lot you might think, but really that is all you have in machine code. The difference is, of course, the speed. In Basic time is used deciphering the command so you get a gap between each sound.

Type - Forn = 1To255. Sound N,1 Next

Nothing new but you can hear the gaps. In machine code there are no gaps and thus increases the speed tremendously, but also, it increases the pitch.

We have decided then that the *Sound* command is no good for sound effects, (yes we have). Onwards then to the *Play* command. Considerably better. You can play tunes with this one and it is a bit better for sound effects but when it comes to the hyper-laser quazer beam, a speeded up tune isn't quite good enough! You can make your tunes/effects sound a bit different if you do the following.

```
Play"T255V15A" Poke65313,48:Play
 T401L5BP14L6BP16BP14L5BO2T3P14L
6DL7P20D-P24D-P24O1T2BF24BP24AP
22L2BL3"
```

Once you have *Played* something then *Poked* this value, all sound will be weird until the computer is *Reset*. Also note that the Volume parameter doesn't work.

But now we are going back to the *Sound* command, but not that sound command, *my* sound command. It is in the form. *Sound(beg,end,vib,vol)*

This program gives you an extension to the rather drab existing *Sound* command, you can still do *Sound10 1* but you can also define your own 'QUAZER' type sound. I will now attempt to explain each parameter in turn.

Beg: This is the beginning of the sound pitch, the higher the number, the lower the sound will be when it starts. This number can be in the range (0-9999). If you choose 0 then you will get two slow beats then the sound. This can be quite effective at times.

End: This is the same as *Beg* but is where you want the sound to end (spot the most obvious statement in this article). If it is lower than *Beg* than the sound will be very long with a quick bit at the end!

Vib: This is the vibration of the notes. It is in the range (0-255) but be warned if you use 0 it will go on forever, it could be used as an alarm of some sort. One is the smoothest or no vibration, 255 is the most. Also note that the higher this number, the quicker the sound will be unless you make the gap between *Beg* and *End* larger. The length of the note depends on the distance between *Beg-End* and also the vibration number.

Vol: This is the volume and determines how loud the sound is (spot the second most obvious statement in this article!) It has a range of (0-252), 0 = can't hear it, 252 = turn the telly down.

Any numbers outside these ranges or numbers omitted etc, will result in the error message: Sound Error or Sound Error in Line 30. Any program or set of instructions will be stopped as with any other errors.

If you have an assembler, you can enter the assembler listing, otherwise a hex dump has been provided. Make sure you *Clear200,32439* before you load in the hex using any hex loader.

NB: Variables may not be used in place of numbers in the command.

```
HEX DUMP
EXEC 32440 TO ACTIVATE
7EB8*8E 7E C4 8F 01 7A 86 7E 87
7EC1*01 79 39 01 A2 27 01 39 9E
7ECA*A6 30 01 A6 80 81 28 10 26
7ED3*00 E4 86 05 B7 7F 2C 6D 48
7EDC*81 6A 27 E8 10 8F 7F 93 30
7EE5*01 8D 3C 81 8A 27 DC 10 8F
7EEE*7F 82 86 04 87 7F 2C 30 01
7EF7*8D 28 81 8A 27 C8 10 8C 00
7F00*FF 10 22 00 B7 1F 20 F7 7F
7F09*AE 30 01 8D 16 81 0A 27 86
7F12*10 8C 00 FC 10 22 00 A2 1F
7F1B*20 C4 FC F7 7F 9A 16 00 69
7F24*34 10 C5 FF A6 80 5C C1 05
7F2D*26 05 35 10 16 00 88 81 29
7F36*27 04 81 2C 26 EC 35 10 10
7F3F*8E 00 00 C1 04 26 08 CE 03
7F48*E8 FF 7F 7E 80 25 C1 03 26
7F51*08 CE 00 64 FF 7F 7E 8D 19
7F5A*C1 02 26 08 CE 00 0A FF 7F
7F63*7E 8D 0D C1 01 26 52 CE 00
7F6C*01 FF 7F 7E 8D 01 39 CE 00
7F75*00 A6 80 80 30 27 07 33 C9
7F7E*03 E8 4A 26 F9 34 04 1F 30
7F87*31 A8 35 04 5A 39 86 3F 87
7F90*FF 23 8E 00 01 34 10 34 10
7F99*86 FC 87 FF 20 30 1F 26 FC
7FA2*35 10 7F FF 20 30 1F 26 FC
7FAB*35 10 86 0A 30 86 8C 07 00
7FB4*25 DF 86 86 39 86 A2 39 8D
7FBD*90 A1 8E 7F E6 8D 90 E5 9E
7FC6*68 0C FF FF 27 12 34 10 8E
7FCF*7F F3 80 90 E5 35 10 1F 10
7FD8*8D 95 7A 8D 90 A1 8E 7F FE
7FE1*9F A6 86 8A 39 53 53 4F 55
7FEA*4E 44 20 45 52 52 4F 52 00
7FF3*20 20 49 4E 20 4C 49 4E 45
7FFC*20 00 8A 00 7E 8B 40 7E 88
MEMORY DUMP FROM 32440-32767
```

```
* USER DEFINABLE SOUND COMMAND *
   * BY WAYNE J. SMITHSON *
        ORG #32440
        PUT #32440
BEG     EQU BEG1+1
END     EQU END1+1
VIB     EQU VIB1+1
VOL     EQU VOL1+1
NUM     EQU NUMBER+1
INCR    EQU THOU+2
        LDX #START *INTERCEPT
        STX 370    *TO MY
        LDA #126   *ROUTINE
        STA 377
        RTS
START   CMPA #162  *SOUND TYPED?
        BEQ SOUND  *YES.
OUT2    RTS        *NO, RETURN.
SOUND   LDX $A6    *START OF
        LEAX 1,X   *COMMAND+1
        LDA ,X+    *CHECK IF NEW
        CMPA #'(   *SOUND COMMAND
        LBNE OUT   *NO, RETURN
        LDA #5     ******
        STA NUM    *****
        BSR GETNUM ****
        CMPA #138  ***
        BEQ OUT2   **
        STY BEG    *GET ALL
        LEAX 1,X   *VALUES
        BSR GETNUM *FROM THE
        CMPA #138  *COMMAND
        BEQ OUT2   *AND
        STY END    *PUT
        LDA #4     *THEM
        STA NUM    *IN THE
        LEAX 1,X   *CORRECT
        BSR GETNUM *PLACE
        CMPA #138  *WHILE
        BEQ OUT2   *CHECKING
        CMPY #255  *FOR
        LBHI ERROR *ERRORS
        TFR Y,D    *AT THE
        STB VIB    *SAME
        LEAX 1,X   *TIME.
        BSR GETNUM *IF A=138
        CMPA #138  *THEN ERROR
        BEQ OUT2   *HAS OCCURED.
        CMPY #$FC  **
        LBHI ERROR ***
        TFR Y,D    ****
        ANDB #$FC  *****
        STB VOL    ******
        LBRA PLAY  *ALL IS OK
GETNUM  PSHS X     *CHECK FOR
        LDB #255   *NO COMMAS
CHECK   LDA ,X+    *OR END
        INCB       *BRACKET
NUMBER  CMPB #5    *OR NUMBERS
        BNE OK     *TOO LONG
        PULS X
        LBRA ERROR
OK      CMPA #')
        BEQ GOTEND
        CMPA #',
        BNE CHECK
GOTEND  PULS X     *ALL IS OK
        LDY #0000  *SO GET THE
        CMPB #4    *CORRECT
        BNE N2     *NUMBER
        LDU #1000  *BY
        STU INCR   *ADDING
        BSR ADDUP  *TOGETHER
N2      CMPB #3    *THE
        BNE N3     *THOUSANDS,
        LDU #100   *HUNDREDS,
        STU INCR   *TENS
        BSR ADDUP  *AND UNITS.
N3      CMPB #2
        BNE N4
        LDU #10
        STU INCR
        BSR ADDUP
N4      CMPB #1    *CHECK NO
        BNE ERROR  *NUMBER
        LDU #1
        STU INCR
        BSR ADDUP
        RTS
ADDUP   LDU #0000  *ADD UP THE
        LDA ,X+    *VARIOUS
        SUBA #48   *COLUMNS
        BEQ FINI
THOU    LEAU 1000,U
        DECA
        BNE THOU
FINI    PSHS B     *COMBINE THE
        TFR U,D    *COLUMNS
        LEAY D,Y   *TO GIVE
        PULS B     *ONE NUMBER
        DECB       *IN THE Y
        RTS        *REGISTER
PLAY    LDA #$3F
        STA $FF23  *AUDIO ENABLE
BEG1    LDX #0001  *BEGIN
LOOP    PSHS X
        PSHS X
VOL1    LDA #$FC   *VOLUME
        STA $FF20  *STORE IT IN
DEC1    LEAX -1,X  *SOUND PORT,
        BNE DEC1   *DELAY TO
        PULS X     *ALTER PITCH
        CLR $FF20  *CLEAR SOUND
DEL2    LEAX -1,X  *PORT TO HEAR
        BNE DEC2   *SOUND
        PULS X
VIB1    LDA #10    *VIBRATION.
        LEAX A,X
END1    CMPX #2000 *END
        BEQ LOOP
        LDA #134   *'DATA' TOKEN
        RTS        *FINISHED
OUT     LDA #162   *'SOUND' TOKEN
        RTS        *FINISHED
ERROR   JSR $90A1  *LINE FEED
        LDX #ERRM  *SCREEN
        JSR $90E5  *PRINT MESSAGE
        LDX 104    *GET LINE NO
        CMPX #65535
        BEQ DONE   *CHECK NO LINE
        PSHS X
        LDX #LINE  *PRINT REST
        JSR $90E5  *O- MESSAGE
        PULS X
        TFR X,D    *PRINT LINE
        JSR $957A  *NUMBER
        JSR $90A1  *LINE FEED.
DONE    LDX #END2  *STOP BASIC
        STX $A6    *PROGRAM OR
        LDA #138   *SET OF
        RTS        *INSTRUCTIONS
ERRM    FCC /SSOUND ERROR/
        FCB 0
LINE    FCC /  IN LINE /
        FCB 0
END2    FCB 138,0
```

Open Forum

We are always actively seeking programs for publication – either for Open Forum, the machine pages or Star Game. When sending in a program for consideration a clear program listing should be sent, together with, wherever possible a saved copy on cassette. Documentation – usually not more than 1000 words – should start with a general description of the program, what it does, and then some detail of how the program itself is constructed. We pay very competitive rates, according to the length and nature of the program and the quality of the accompanying documentation.

Numerals

on Spectrum

Our modern system of numbering, with its reliance on place-values, was invented by Hindu mathematicians in the sixth century AD and introduced to Europe by Arab traders (hence the word 'Arabic' for the numerals 1 to 9). The system it supplanted was the one used throughout the Roman Empire, the characters it employed being known for this reason as 'Roman numerals'. Despite the superior usefulness of Arabic numerals as a medium for calculation, the Roman system proved tenacious: even today it is used as a method of numbering chapters of books as well as on clock faces. Older books frequently have a date of publication printed in Roman numerals.

This program converts these numerals to the more familiar Arabic format. It works by first totalling the numeral values of all the characters (as though no subtraction were involved) and then subtracting an appropriate amount for each instance of the subtractive principle which it discovers.

```
  1 REM Number change © C.P.Rav
ilious 1983.
  5 BORDER 0: PAPER 6: CLS
 10 CLS : PRINT AT 3,7;"
";AT 4,7;"
";AT 5,7;"
 15 PRINT AT 10,0;"This program
 converts numbers inRoman numera
ls, including dates,into their A
rabic equivalents."
 20 PRINT AT 21,2;"- PRESS ANY
KEY TO CONTINUE -"
 25 IF INKEY$="" THEN GO TO 25
 50 CLS : PRINT AT 3,0;"Enter t
he number you wish to    convert
, using capital letters.",AT 6,0
;"e.g. MCMLXXXIII"
 80 LET o=0: LET p=0: LET q=0:
LET r=0: LET s=0
 90 LET t=0: LET c=0: LET l=0:
LET x=0: LET v=0: LET i=0
100 INPUT a$
110 FOR n=1 TO LEN a$
115 IF a$(n)<>"M" AND a$(n)<>"D
" AND a$(n)<>"C" AND a$(n)<>"L"
AND a$(n)<>"X" AND a$(n)<>"V" AN
D a$(n)<>"I" THEN GO TO 80
120 IF a$(n)="M" THEN LET t=t+1
000: GO SUB 500: GO SUB 550: GO
SUB 600: GO SUB 650: GO SUB 700
130 IF a$(n)="D" THEN LET t=t+5
00: GO SUB 500: GO SUB 550: GO S
UB 600: GO SUB 650: GO SUB 700
140 IF a$(n)="C" THEN LET t=t+1
00: LET c=c+1: GO SUB 550: GO SU
B 600: GO SUB 650: GO SUB 700
150 IF a$(n)="L" THEN LET t=t+5
0: LET l=l+1: GO SUB 600: GO SUB
 650: GO SUB 700
160 IF a$(n)="X" THEN LET t=t+1
0: LET x=x+1: GO SUB 650: GO SUB
 700
170 IF a$(n)="V" THEN LET t=t+5
: LET v=v+1: GO SUB 700
180 IF a$(n)="I" THEN LET t=t+1
: LET i=i+1
290 NEXT n
395 PLOT 5,112: DRAW 240,0: DRA
W 0,-70: DRAW -240,0: DRAW 0,70
400 PRINT AT 10,3;"The Arabic e
quivalent of";AT 12,10;a$;AT 14
,3;"is ";t-o-p-q-r-s;"."
405 PRINT AT 20,0;"Do you wish
to convert another  number (Y/N)
?"
410 IF INKEY$="" THEN GO TO 410
420 IF INKEY$="y" OR INKEY$="Y"
THEN GO TO 50
425 STOP
500 IF c>0 THEN LET o=200
510 RETURN
550 IF l>0 THEN LET p=100
560 RETURN
600 IF x>0 THEN LET q=20
610 RETURN
650 IF v>0 THEN LET r=10
660 RETURN
700 IF i>0 THEN LET s=2
710 RETURN
```

Numerals
by C Ravilious

Book Ends

Book *Supercharge Your Commodore 64* **Price** £6.95 **Micro** Commodore 64 **Supplier** Melbourne House (Publishers) Ltd., Melbourne House, Church Yard, Tring, Hertfordshire HP23 5LU

Supercharging improves the performance of your car and the machine code routines contained in this book will certainly speed up your Commodore 64.

Of course, the CBM 64 needs this sort of boost owing to the insufficient nature of its Basic control over sound and graphics, and here are the techniques, clearly laid out. You are taken through the bit-mapped screen, sprite control and various sound and music effects, to utilities such as a line renumber.

What sets the book apart though is that almost every routine is accompanied by a flow chart, and combined with the fundamental explanation of machine code in the first chapter, it provides a clear and practical introduction to assembler programming. Highly recommended for being more than just a rather daunting list of mnemonics. **John Minson**

Book *Micro-Maths* **Price** £8.95 **Micro** Any **Supplier** Macmillan Publishers Limited, Houndmills, Basingstoke, Hants RG21 2XS

A character in the film *Gregory's Girl* observes that boys seem to be fascinated by numbers. Whether this book, based on Keith Devlin's *Guardian* newspaper column, will mainly appeal to boys remains to be seen, but its subject is numbers.

Within its hundred pages you'll find the quest for the ultimate prime number, strange facts about pi (not the one on the back cover of this magazine) how to calculate the Oxen of the Sun!

Computers have played their part in unravelling such numerical teasers, but even if you don't own a *Cray-1* there are problems to solve on your humble micro. So if you have a number crunching mind this book is for you, though others may find their heads reel from its mathematical magic.

John Minson

Book *Tim Hartnell's QL Handbook* **Price** £7.95 **Micro** Sinclair QL **Supplier** Interface Publications Ltd., 9-11 Kensington High Street, London W8 5NP

If, as is said, stardom is the name above the title, Tim Hartnell (or 'Mr Sinclair' according to the cover to his latest opus) is a star.

Unfortunately, every star has his bad days and this lacklustre survey of QL Superbasic appears to be a product of one of Tim's. It's dash through the language is punctuated by numerous short programs and a handful of blank pages.

Never mind. 'Mr Sinclair' is a prodigious author and his next book on the QL can only be better. **John Minson**

Screen Dump on Memotech

After writing a Basic screen dump I found that, although fast compared to screen dumps for other machines, the program was still quite slow.

I then wrote the routine in Z80 Assembler and here is the final result which should work with any Epson compatible printer, eg, Shinwa CTI CP80.

It takes just under 50 seconds to dump the whole graphics screen on to paper.

```
8010 START:  LD A,27
8012         CALL PRINT
8015         LD A,"A"
8017         CALL PRINT
801A         LD A,7
801C         CALL PRINT
801F         LD B,191
8021 LL:     PUSH BC
8022         LD A,B
8023         LD (Y),A
8026         LD A,27
8028         CALL PRINT
802B         LD A,"K"
802D         CALL PRINT
8030         LD A,0
8032         CALL PRINT
8035         LD A,1
8037         CALL PRINT
803A         LD B,255
803C L1:     CALL CSR
803F         DJNZ L1
8041         CALL CSR
8044         LD A,13
8046         CALL PRINT
8049         LD A,10
804B         CALL PRINT
804E         POP BC
804F         LD A,B
8050         SBC A,7
8052         JP Z,END
8055         LD B,A
8056         DJNZ LL
8058         RET
8059 CSR:    LD A,255
805B         SBC A,B
805C         LD (X),A
805F         RST 10
8060         DB #85,27,67
8063 X:      DB 0
8064 Y:      DB 191
8065         DB 8
8066         LD A,(#FE1A)
8069 PRINT:  PUSH AF
806A LOOP:   IN A,(4)
806C         BIT 0,A
806E         JP NZ,LOOP
8071         IN A,(0)
8073         POP AF
8074         OUT (4),A
8076         RET
8077 END:    RET
8078         RET

Symbols:
START   8010
CSR     8059
LL      8021
X       8063
LOOP    806A
PRINT   8069
L1      803C
Y       8064
END     8077
```

Screen Dump
by M Docherty

Baud Walk

Share and share alike

Many readers will have recently heard of, or even received a mailshot for, Dialog Knowledge Index. It is a stripped down, cheap rate version of the Dialog Database, one of America's premier keyword search systems.

If you network regularly, you'll be used to what is known as 'menu-driven' systems, which allow you, the user, to follow fixed options on your travels through the database. Whilst this is acceptable to most people, it soon becomes tedious to have to labour through several menus to get to a frequently used page. For this reason, most menu driven networks offer a 'skip' method of pinpointing the information required.

All menu driven systems guide the user down well defined routes, and give the impression of allowing 'freedom of choice', when, in fact, this is not so. If you don't know what's there, how do you know that you want to look at it? This is where systems such as Dialog, and its off-peak service, Knowledge Index come in. They provide what are known as Keyword searches. Put simply, you type in the word, or words that you're interested in, and a few seconds later, a set of files are printed out at your terminal. Great! Why don't all databases use it? For the simple reason that whilst the host computer is searching for your enquiry, it cannot (effectively) deal with many other similar such enquiries. In short, it is expensive in (C)entral (P)rocessor (U)nit time.

CPU's as they are known, cost money – hence the (relatively) high charges of such systems – Knowledge Index costs a cool $25 an hour to use!

Menu based services, as most readers in the UK will be familiar with, work on the premise of timesharing of CPU time. When you key a command on Prestel, the central computer actions your command in the blink of an eye but, because it takes a second or two to transmit the page to your terminal, it appears instantaneous to you. This allows the computer to multi task other jobs.

With keyword searching, the computer can only deal with a few searches simultaneously, unless it has a very large CPU, with a corresponding increase in its, and therefore your, costs. Knowledge Index is the first attempt by a major Database Vendor to approach the mass market. Previously, most users were libraries, or large institutions, who could absorb the high costs easily. Nevertheless, the charges for even a few hours usage are extremely high, and likely users would be wise to consider the potential costs before embarking on what could turn out to be an expensive exercise. Dialog Knowledge Index P O Box 8, Abingdon, Oxford OX13 6EG. Telephone 0865 730969. Signup £25 including 2 free hours + manuals $25 (£21 approx – based on current exchange rates) an hour thereafter.

Robin Wilkinson

Baud Walk is a new weekly column with news on networking, data bases, reviews of modems and software and points of contact for information.
Any readers with experience of networking are asked to send their experiences or news of services to Robin Wilkinson, Baud Walk Popular Computing Weekly 12-13 Little Newport Street London WC2H 7LD. He can also be contacted on Prestel mailbox 019998727



Knight Lore Special

This week we have an extra special treat from Nick Moore of London for Spectrum owners in the form of a map of Ultimates's *Knight Lore*. Incidentally with the release of *Sabre Wulf* for the BBC B who knows where versions of the Sabre Man trilogy will turn up next – so I advise everyone, especially Beeb owners, to keep hold of their copy as well. Ultimate are notoriously tight lipped about their plans and often the only clues we get about future releases come when someone completes one of the games — it seems particularly interesting that there are at least three different messages at the end of *Underwurlde*, one of which refers to *Knight Lore*, one to a game called '*Pentagon*' and one to '*Mire Mare*'. The latter is also mentioned at the end of *Knight Lore*. How close these are to completion, or how soon *Alien 8* will be released, no one knows at the time of writing.

Anyway our sincerest thanks go out to Nick for his stirling work in compiling this guide. Not surprisingly, considering the complexity of the graphics, the maze is smaller than in other recent Ultimate games but the fact that you can't tear around at top speed rushing straight past some locations makes the game seem larger that it is (which I'm sure is partly why many found *Atic Atac* more enjoyable and challenging than the much larger *Sabre Wulf*). The map is based on a 16x16 grid although only 128 locations are used (compared to over 500 in *Underwurlde*). There are 32 objects dotted around of eight types, four of each, and they will always be arranged in one of eight possible layouts. The table thus allows you to predict the location of the remaining objects once you have found one of them. For example, if you find a bottle in room C3 you can look along the table and see that arrangement '2' is operating. Looking for the number 2 in the 'Boot' row for example will show you the rooms where boots can be found.

The aim of the game is to collect two of each object and put them into the wizard's cauldron in the correct order. The cauldron smoke tells you which item is needed next and you simply have to look in the table to see where to go. Easy – now you only have to worry about the guards, the ghosts, the spikes, the collapsing floors.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.

TABLE OF OBJECTS

E1	N1	P1	H5	N3	A9	P4	N7	
C3	L5	P10	L11	A5	D9	C8	I8	
E3	F7	L12	G16	A11	H11	O9	G14	
F14	K9	F16	A1	A16	I14	F15	N16	
1	2	3	4	5	6	7	8	BOOT
2	3	4	7	8	5	6	1	BOTTLE
3	4	7	6	1	8	5	2	GEM
4	7	6	5	2	1	8	3	BOWL
5	8	1	2	7	4	3	6	T-CUP
6	5	8	1	4	3	2	7	POISON
7	6	5	8	3	2	1	4	ORB
8	1	2	3	6	7	4	5	LIFE

KNIGHT LORE

KEY

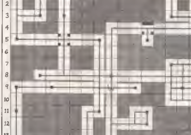
A ROOM WHICH CAN'T BE PASSED WITHOUT AN OBJECT

EMPHASIZED ROOMS, WHERE YOU MIGHT START

A ROOM WITH AN OBJECT IN IT

THE WIZARD'S ROOM WITH THE CAULDRON

DIAGRAM BY NICK MOORE AND MASSIMO PILIA



Tony Bridge's Adventure Corner



Midnight's Children

The grand Elf is back in the frozen wastes this week – but this time in the Land of Midnight. It's been several months since I last looked at *The Lords Of Midnight* Beyond's great adventure/strategy/war game. In the meantime, of course, the sequel has been released and is doing a roaring trade everywhere. I've had a couple of letters from the first people to brave Shareth's wrath and complete the game – but I'll get on to these in next week's Corner.

For now, let's look back at LOM and some of the techniques that players have found paid off in their battles against Doomdark. The first point is raised by Keir Thorpe (he was mentioned in Vol 3 No 39), who says "I'm surprised that many people seem to have taken between 309 and 403 days to storm the Citadel of Ushgarak. I did it in 32 days with a force of all the Marshal Lords (there are ten) each with an army of 1000 men at least, and many other Lords, totalling about 6-7000 men."

The speed with which the Quest can be accomplished is mentioned in most LOM letters. Graham Nash, for example, writes "I captured the foul citadel after 30 days." While a favourite strategy seems to be to hole up in Xajorkith, Graham favours bypassing Xajorkith – "this only slows down one's armies and is a bit risky" – and forging on with a large force to Ushgarak, where the final assault may be made while the Foul legions sweep south to Xajorkith, taken in by the feint. Meanwhile, of course, Morkin has captured the Ice Crown and thus a double victory is secured.

Jim Clavier, whose name I've mentioned before in the Corner, says "Victory went to the Free after 26 days. Also find enclosed a printout which shows Luxor in the Frozen wastes. I'm not telling you how I got him there (oh spoilsport) because I would like to think that I have been very clever, when fact it was pure accident!"

Richard Clift helped Morkin to complete his Quest in 17 days, although the military defeat of Doomdark's armies took a little longer – 50 days. This is quite quick. Richard speaks for many others when he says "Probably the best strategy appears to be: send Morkin up the West side of the map, heading North until you find Fawkrin at Moonhenge. Recruit him and keep him with Morkin all the time, although you must remember that he cannot travel as fast. Keep moving North until you reach the Citadel of Gloom and then East to the Mountains of Death and ultimately to the Tower of Doom. Then take the Ice Crown! PS – Lord Herath will never go into battle!"

Alasdair Fraser also asks "Is my achievement of 17 days a record?" As you will see, Alasdair, it is not! Jonathan King, though, says "I have destroyed the Ice Crown in just 16 days, is this a record?" Read on Jonathan!

Iain Gibson: "It takes me a mere 11 days to win by destroying the Ice Crown, and 35 days by capturing Ushgarak." Iain, like several others, prefers to send another friend, Farflame, with Morkin. "I was rather surprised at your description of Farflame as 'weak'. He is in fact one of the strongest characters in the game. In one of my battles he saw off over 400 of the foul!" Yes, I'm afraid that I made a bit of a booboo there – I've had dozens of letters from the Fans of Farflame, and I now say, very contritely, that Farflame has been maligned – of course, he *is* very strong, and, moreover, can travel *very* quickly (which, in my defence, I did mention), having the power of flight. J B Eastman, incidentally, has found a novel use for Farflame: "Before doing anything else, I mapped the whole of Midnight, ending up with a 3ft × 4ft epic. I did this by employing Farflame, who moves around at a fantastic rate."

Iain goes on to counter Keir Thorpe's remarks in that Corner about 'a possible bug' that he thought he'd discovered – namely, that some characters seemed to experience an early dawning. This, says Iain "is the work of the Cup of Dreams. This is magical, and when found, no matter what time of day it is, Dawn breaks. It is roughly the opposite of the Hand of Darkness, which brings death to the day." Susan Scott also mentions the Cup of Dreams, and says that "pressing *Seek* at certain Liths will give you the information you require."

But back to the record-breakers. J B Eastman, mentioned earlier, declares triumphantly "Quite by accident, I defeated Doomdark by sending Morkin off on his adventure. It took exactly 6 days. Even when allowing Morkin to wander around admiring the ruins and cutting his toenails at every possible opportunity, it has never taken more than 20 days. I now tend to use this strategy if I only have an hour or so to play."

But all this talk of record-breaking, gratifying though it may be to the player, should not divert attention from the richness of the game. Apart from the speedy end which Morkin's Quest can bring, there is the more complex and rewarding military campaign. This is highlighted by Matthew Baker: "The characters, depending upon exhaustion, will only travel 8 leagues on the plains, 6 on the Downs, 4 in the Forests and 2 in the Mountains (Fey will travel fastest in Forests)." This will strike a chord in the hearts of those old wargaming fans! Matthew also has a couple of hints for those of us still looking for a couple of the Lords. "To find the Lord of Shadows, who is Fey, travel N,N,NWQ from the Tower of the Moon. And Farflame can be found near the village of Coroth, 16 or 17 leagues north of the Tower of the Moon."

Thanks to everyone who has written to the Elf about Lords of Midnight. J J Smith sent a very useful list of all the characters and their location in the game, while others have sent detailed maps. John Nolan, who describes himself as "a cynical programmer" (is there another kind John?) has found a anomaly which he calls "Longrim's Bubble", which manifests itself as the Tower of the East of Fadrath (Lord Lorgrim of course is one of the characters who can destroy the Ice Crown). The path to this Tower is very narrow, and John's tactic is to amass the Armies of the Free (24,000 of 'em!) in this narrow neck, and allow them all to become Utterly Invigorated.

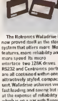
Next week, our first *Doomdark's Revenge* victors.

This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So if you have an Adventure you want reviewed, or if you are stuck in an Adventure you cannot progress any further, write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.



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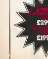
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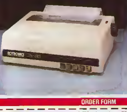
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Peek & Poke



Joystick choice

Paul Tang of Burton on Trent, writes

Q **I have only seen two joysticks for the BBC; the Quickshot and the one from Acorn. I was wondering whether there were any other joysticks for the BBC that you would recommend.**

A One other that I have come across is the Zip Stick, retailing at about £18. However, joysticks are not really things to be bought on the recommendations of another person. It is really a matter of personal choice, you should buy the stick that you feel most comfortable playing with. It's no good if you buy one that gives you 16-way movement if your hand aches every time that you use it!

The waiting game

Vincent Tuckwood of Watford, writes:

Q **Earlier this year I was on the verge of buying a Commodore 64 when an announcement was made concerning the new family of micros being developed by Commodore. After deciding to wait I have now been able to read several glowing reports of the Plus/4. The Plus/4 seems suitable for the serious applications that I would need, I am, however, disturbed that it seems less suitable for games, which is the other feature that I would want from a micro.**

Will the popular games for the CBM 64 be made available on the Plus/4, and also will the CBM 64 die out as a result of the Plus/4. Although the ultimate choice remains mine, I would be grateful for your advice on whether I should go for the Plus/4 or for the established CBM 64

A I don't believe that the Plus/4 will be able to offer the range of games software that the CBM 64 has, neither do I believe that the CBM 64 will be phased out as a direct result of the Plus/4. In the light of these facts it would seem to me that you would be best advised to go for the CBM 64.

It is always the case with home computers that as soon as you have made your mind up as to which machine to buy another new product will appear to confuse the issue yet again. It is all a question of timing, I suppose. For example, I bought a computer, and two weeks afterwards the price was reduced by £50! Even the best of us make mistakes.

Missing header

James Young of Redditch, Worcestershire, writes

Q **How do I Load and Save and Run a copy which has lost it's header? I have a number of such programs. Some have lost the header due to my carelessness in Saving, and some for other reasons. As I no longer have the listings for the bulk of these programs they are effectively lost to me.**

I know I am not the only one with this problem, two of my friends, both Spectrum users like myself, have the same problem and we would all be very grateful for an answer.

A A technique that I have used quite successfully is to *Load* the header portion of a complete program, stop the cassette after the header has been read, and then *Load* in the tape containing the headerless program. When *Loading* has finished you will get the message *Tape Loading Error*, but on *Listing* (if in Basic) you will find that the complete program is there.

With machine code you will also have to make sure that the header you choose is for a large program (bigger than the one you are trying to *Load*), and that the correct *Clear* command has been issued. Once a program has been successfully *Loaded* in to memory, *Saving* it should present no problem. But don't forget to let the cassette run past its leader portion, or you will lose the headers again!

Add-on keyboard

Jason Toole of London, writes,

Q **I am seriously thinking of purchasing a typewriter style keyboard for my 48K Spectrum. There is a large selection on the market, so please could you help me to choose one. The price should be about £50**

A The new LoProfile keyboard (which was reviewed in Vol 3 No 38) seems a good bet for you. As the reviewer says, "It's good looking, electromechanically simple and easy to fit." At £48.95 this keyboard is just within your price range.

It is also, not the first Spectrum keyboard produced by the manufacturer (Advanced Memory Systems), and this time they do appear to have corrected a lot of the problems normally associated with replacement keyboards for the Spectrum.

Their address is Green Lane, Appleton Warrington.

Uncomfortable keys

N Hurll of Ringwood, Hampshire, writes

Q **Please can you help me? I own a 48K Spectrum and some of the games I have use control keys which are very uncomfortably placed. Is there anything I can do to change the control keys to my choice, where the program does not have that facility built in?**

A Your best bet would be one of the programmable joysticks that are currently available.

There is quite a good choice, I will mention two that I have used myself, although there are others that I have seen reviewed that seem to be of similar quality.

The two I can personally recommend are the Fox programmable joystick (£36.95) and the Cambridge programmable joystick (£29.95). You can contact Fox at Fox House, 35 Martham Road, Hemsby, Great Yarmouth, Norfolk NR29 4NQ, and Cambridge at 61 Ditton Walk, Cambridge CB5 8QD.

High resolution

Clive Savage of Millom, Cumbria, writes

Q **Please explain the difference between Normal, Medium and High resolution colour monitors (in relation to an 80 column display and 640 × 256 graphics display).**

A The main factor to consider when looking at monitors is the number of plotting points across and down the screen that are available to you. Most micros use the 8 × 8 pixel matrix to display a character thus meaning that to display 80 characters across the screen, you require 80 × 8 pixels across (640).

A normal domestic television set is not normally able to handle resolution of this type very successfully, which results in a blurring of the image being displayed.

This is where the monitor comes in. A reasonable monitor should provide for 640 × 256 graphic without any problem.

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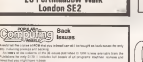
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Twin Kingdom Valley on Commodore 64 I have 1024 points and all the treasures How do you finish the game after this? P Arthur 260 Baldwin Lane Croxley Green Herts WD3 3LQ Tel 0923 770607

Return to Eden on Amstrad. How do I avoid being killed by the Snowball engines? David Heggie 29 East Claremont Street Edinburgh Scotland EH7 4JE

Velnors Lair on Spectrum How do I get past the lava level? How do I pass the crocodiles? T M Bruce 52 Queen Street Peterhead Aberdeenshire AB4 6TT

Pyramid on Vic 20. I have reached the dusty cellar and do not know how to go further Stephen Bowes 104 Western Road Goole N Humberside DN14 6RD

Fantasia Diamond on Spectrum. How do you get out of the cellar? Roland Wrone 27 Brian Close Wootton Basset Swindon Wilts

Kentilla on Spectrum How do you get out of the castle and find the dry moss? Chris Farmer 2 Mill Road Hinckley Leicestershire LE10 0AX.

Stolen Lamp on BBC How can I get the sword out of the pillar and get the keybox out of the column without the ceiling falling on me? Michael Mitchell 139 Fitzhubert Road Sheffield S2 1EJ Tel 0742 557469

Twin Kingdom Valley on Commodore 64 I cannot get the master key from the dragon. Stephen Coyne Carden Flat Rougemont Marshall Road Ryde Isle of White PO33 1LS

Wepton Village Race on Amstrad. How do I get past the policeman and how do I enter the house of ill repute? David Halliwell 4 Heathendale Close Oxton, Birkenhead, Merseyside L42 8QX

Twin Kingdom Valley on Commodore 64. How do you get into the Desert King s castle? Carl Walker 5 Larkspur Gardens Templeton nr Narberth, Dyfed, S Wales

Evil Realm on Spectrum. I m going crazy! How do I get past the gorgon? (It's a brilliant adventure) Help! Simon West Corner Cottage, 47 Castle Road, Southall Middx

Zorb s Kingdom on Vic 20 How do I stop falling down the deep pits? Paul Brake 5 Drum Terrace Edinburgh EH7 5NB

Urban Upstart on Commodore 64. How do I stop sinking on the building site and where is the credit card for the bank? Karl Marsh 30 Cockmage Road, Dresden Stoke-on Trent, Staffs ST3 4AP

Twin Kingdom Valley on Commodore 64. How do I get the master key from the dragon? G Kilaby 30 Wheatfields St Ives Hunts Cambs PE17 4YD

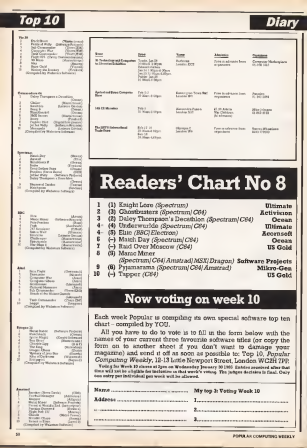
Quest of Merevid on Commodore 64. Everytime I get to the glacier to get the grandiete I die of hypothermia. Paul Hart 4 Dunsdale Drive Kingsbury London NW9 8NT

Greedy Gulch on Spectrum. How do I find the mine? I am in the desert looking at the map How do I get into the stockyard? Steve Fox, 8 Worthington Street Old Trafford, Manchester M16 9LA.

Valhalla on Spectrum Please will somebody tell me where Skornir is? Bruce Vivers Wevel House Hillhead Halls Don Street Aberdeen, Scotland

Escape From Pulsar 7 on BBC How do I open the locker on the ceiling above the captain s bunk? How do I move the wreckage in the wrecked room in the maze? Kevin Squires 3 Crane Walk Thorplands Brook Northampton NN3 4YE PS I have solved Countdown to Doom on BBC if anyone needs help

10 Little Indians on Spectrum I have the Red Yellow Blue Green Silver Grey White Black and Pink figurines Where is the last one? Peter Ferris, 171 Becort Close Dagenham Essex RM10 9YX Tel 01 985 4923



Vic 20
1 Duck Shoot (Mastertronic)
2 Perils of Willy (Software Projects)
3 Sub Commander (Thorn/EMI)
4 Computer War (Thorn/EMI)
5 Tank Commander (Thorn/EMI)
6 Flight 015 (Cmdy Communications)
7 3D Maze (Mastertronic)
8 Max (Anirog)
9 Snoe Gold (Vicmax)
10 Mickey the Bricky (Firebird)
(Compiled by Websters Software)

Commodore 64
1 Daley Thompson's Decathlon (Ocean)
2 Chiller (Mastertronic)
3 Scrabble (Leisure Genius)
4 Kong 2 (Ocean)
5 Hunchback 2 (Ocean)
6 BMX Racers (Mastertronic)
7 Booty (Firebird)
8 Fighter Pilot (Digital Integration)
9 Jet Set Willy (Software Projects)
10 Monopoly (Leisure Genius)
(Compiled by Websters Software)

Spectrum
1 Match Day (Ocean)
2 Airwolf (Elite)
3 Hunchback 2 (Ocean)
4 Booty (Firebird)
5 Kong Strikes Back (Ocean)
6 Snooker (Steve Davis) (CDS)
7 Jet Set Willy (Software Projects)
8 Daley Thompson's Decathlon (Ocean)
9 Rhunes of Zendos (Tercas)
10 Matchpoint (Sinclair)
(Compiled by Websters Software)

BBC
1 Elite (Acorn)
2 Manic Miner (Software Projects)
3 Pole Position (Atari)
4 Frak (Aardvark)
5 747 Simulator (D/Soft)
6 Sabre Wulf (Ultimate)
7 Scrabble (Leisure Genius)
8 Challenger (Mastertronic)
9 Spectipede (Mastertronic)
10 Star Wars 2 (Mastertronic)
(Compiled by Websters Software)

Atari
1 Solo Flight (Centresoft)
2 Encounter (Hi-tech)
3 Computer War (Atari)
4 Computer Chess (Atari)
5 Gridrunner (Llamasoft)
6 Carnival Massacre (Atari)
7 Sub Commander (Thorn/EMI)
8 Attack of the Mutant Camels (Llamasoft)
9 Tank Commander (Thorn EMI)
10 Loggit (Imagine)
(Compiled by Websters Software)

Dragon 32
1 Manic Miner (Software Projects)
2 Hunchback (Ocean)
3 Sprite Magic (Knight Software)
4 Bug Diver (Mastertronic)
5 Chuckie Egg (A & F)
6 The King (Microdeal)
7 Dragon Chess (Oasis)
8 Mystery of Java Star (Shards)
9 Ring of Darkness (Wintersoft)
10 Kriegspiel (Beyond)
(Compiled by Websters Software)

Amstrad
1 Snooker (Steve Davis) (CDS)
2 Football Manager (Addictive)
3 Blagger (Alligata)
4 Manic Miner (Software Projects)
5 Forest at World's End (Interceptor)
6 Pontoon Diamond (Bronze)
7 Flight Path 737 (Anirog)
8 Chuckie (Micro Power)
9 Monster Chase (Romik)
10 Return to Eden (Level 9)
(Compiled by Websters Software)

Event	Dates	Venue	Admission	Organisers
3rd Technology and Computers in Education Exhibition	Trade, Jan 24 10.00am-1.00pm Educationalists Jan 24 1.00pm-6.00pm Jan 25 11.00am-6.00pm Public: Jan 26 11.00am-6.00pm	Barbican London EC2	Free in advance from organisers	Computer Marketplace 01-930 1612
Apricot and Sirius Computer Show	Feb 5-7 10.00am-6.00pm	Kensington Town Hall London W8	Free in advance from organisers	Paradox 01 241 2354
14th ZX Microfair	Feb 9 10.00am-6.00pm	Alexandra Palace London N22	£1.25 Adults 80p Children (in advance)	Mike Johnson 01-801 9172
The LST'85 International Trade Fair	Feb 17-18 10.00am-6.00pm Feb 19 10.00am-4.00pm	Olympia 2 London W6	Free in advance from organisers	Tarrant-Wheatland 0633 777000

Readers' Chart No 8

1	(1)	Knight Lore *(Spectrum)*	**Ultimate**
2	(3)	Ghostbusters *(Spectrum/C64)*	**Activision**
3	(2)	Daley Thompson's Decathlon *(Spectrum/C64)*	**Ocean**
4=	(4)	Underwurlde *(Spectrum/C64)*	**Ultimate**
4=	(5)	Elite *(BBC/Electron)*	**Acornsoft**
6	(–)	Match Day *(Spectrum/C64)*	**Ocean**
7	(–)	Raid Over Moscow *(C64)*	**US Gold**
8	(9)	Manic Miner *(Spectrum/C64/Amstrad/MSX/Dragon)*	**Software Projects**
9	(6)	Pyjamarama *(Spectrum/C64/Amstrad)*	**Mikro-Gen**
10	(–)	Tapper *(C64)*	**US Gold**

Now voting on week 10

Each week Popular is compiling its own special software top ten chart – compiled by YOU.

All you have to do to vote is to fill in the form below with the names of your current three favourite software titles (or copy the form on to another sheet if you don't want to damage your magazine) and send it off as soon as possible to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 10 closes at 2pm on Wednesday January 30 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... **My top 3: Voting Week 10**
Address .... 1.................................
.... 2.................................
.... 3.................................

BIZARRE

Romik certainly release a lot of programs Latest two are *Knightmare* and *Captain Starlight*, both for the C64

These two are claimed to be the last two major releases from the company before the release of its 'The 4th Generation' mega project, whatever that is.

Knightmare the more interesting of the two. It is arcade/adventure of the *Atic Atic* kind and though not original is likely to appeal to Commodore owners who don't have access to that (Spectrum) program. *Knightmare* even has vegualy the same characters as *Atic* – you are a little cartoon knight and must wander around the various rooms of a castle Soon after you arrive in each room dozens of bizarre animals appear, most of which are dangerous.

The basic idea is to collect spells and treasure This (thankfully) isn't just a matter of wandering about and picking them up, but rather it is a question of working out what action does what to produce what spell. There are all kinds of objects lurking about and many have a key function somewhere or other in the game. You work out what and where.

All in all it's not at all bad at £6 99 – not expensive for a Commodore game Hardly daringly original, though

Program *Knightmare*
Price *£6 99*
Micro *Commodore*
Supplier *Romik*
272 Argyll Avenue
Slough SL1 4HE

AUTHENTIC

The Commodore version of *Ghostbusters* was everybody's favourite game, the musical arrangment was so ingeniously constructed that an authentic funk track was created, almost good enough to listen to apart from playing the game Coupled with this was digital speech shouting GHOSTBUSTERS! to your command – it was all utterly infectious, like the movie

But what of the Spectrum version? As everybody knows Spectrum sound was designed with the overriding intention that the deaf shouldn't be jealous How is three track boogie synthesis going to sound on a one channel door bell fitment? And what is the game like?

The Spectrum digital speech is better than anything on the machine I've heard before (with the exception of that provided by special add-ons), but is nothing like as effective as the Commodore equivalent The music is as hopeless as you feared – all blips and boing – you won't be lingering over the intro section on this one

The actual game is quite faithfully recreated Unlike some Spectrum games it is in no way superior to the Commodore version, indeed is definitely worse, but the graphics are at least adequate The program is, summarising, a fair implementation of the Commodore game, neither horrendous nor brilliant The biggest problem, apart from the sound, is Activision's pricing structure – this program does not justify a £9 99 price in anything like the same way that the Commodore version did justify a £10 99 tag – it should be £5 95. Nevertheless if you loved the film you may want the game but don't expect too much.

Program *Ghostbusters*
Price *£9 99*
Micro *Spectrum*
Supplier *Activision*
15 Harley House
Marylebone Road
London NW1

TEDIOUS

Automan – part Hologram, part Californian person, part computer, part hokem, part special effect and part exchange because that's what you'll be wanting to do with this program if you buy it. *Automan*, the officially licensed program, is the most recent Bug Byte biggy – biggy in the sense that it comes in a big cardboard box and costs £8 50

Doubtless some people will buy the program simply because it is to do with *Automan*, their favourite TV program, to these people I can offer little solace The game is in two sections a *Jet Set Willy* screen and 'all - those - 3D maze - games - with - simple - perspective - line - drawing - to - make - up - the - walls' bit.

In the *Jet Set Willy* screen, some completely irrelevant obstacles must be avoided. As you jump left and right to get a little white blob in the far corner, sprites bounce and wobble There are the usual ladders and platforms and quite honestly it looks like Bug Byte slapped these bits into the game after finding that they had something left over from a similar disaster

The other section is completely different. You drive around in your autocar moving between the walls of the city looking for a bomb that has been placed there A timer ticks away the moments until it goes off The best that can be said about it is that the scrolling is OK

If all this seems hard then let me justify it this way – the name of the game alone is going to ensure that people buy it, this is why software companies bother to pay large sums of money for such rights

Program *Automan*
Price *£9 50*
Micro *Commodore 64*
Supplier *Bug Byte*
Mulberry House
Canning Place
Liverpool L1 8JB

This Week

Program	Type	Micro	Price	Supplier
Bridge II	Arc	Amstrad	£7 95	Amsoft
Classic Racing	Arc	Amstrad	£7 95	Amsoft
Mutant Monty	Arc	Amstrad	£7 95	Amsoft
Mr Wong's				
Loopy Laundry	Arc	Amstrad	£7 95	Amsoft
Roland Ahoy	Arc	Amstrad	£7 95	Amsoft
Roland on the Run	Arc	Amstrad	£7 95	Amsoft
Space Hawks	Arc	Amstrad	£7 95	Amsoft
Stockmarket	S	Amstrad	£7 95	Amsoft
Bridge 88	S	BBC	£8 95	Alligata
Storm Flight Path	Ed	BBC	£20 30	Storm
Roller Kong	Arc	C16	£5 95	Melbourne Hse
Automan	Arc	Commodore 64	£8 95	Bug-Byte
Bridge III	S	Commodore 64	£6 95	Alligata
Captain Starlight	Arc	Commodore 64	£6 95	Romik
Desk Diary	Ut	Commodore 64	£29 95	Assoc Services
Empire of Karn	Ad	Commodore 64	£7	Interceptor
Knightmare	Arc	Commodore 64	£6 95	Romik
Bridge 85	S	Electron	£9 95	Alligata

New Releases

WAVES

Before the days of Mastertronic it used to be possible to say of every simple, rather unexciting and unprofessional games from tiny software companies that at least they were cheap

Which they usually were Contrary to popular belief most reviewers are amiable buffoons and have no wish to pour scorn on the efforts of individuals who are probably not making big claims for their programs anyway – it's the glossy-ad, over priced rip-offs that get hammered

The problem with Mastertronic was that here was a professional company putting out quite reasonable (and often good) programs for £1 99 – less than most of the home-made efforts.

Consequently, there are now problems over being nice about something like *Hypertron*. This is a program costing a mere £2 50 for the the Spectrum

Hypertron is not a bad program As a first effort it is commendable but, unfortunately, compared with some of Mastertronic's efforts it isn't technically very good You defend your moonbase with your super-dooper starship thingy Then you get wave after wave of aliens which wander about the screen – I got through five levels until I fell asleep The graphics are quite nice and large, well designed even, but don't move well – all character position movement rather than smooth sprite scrolling The sound effects, however, are not bad

In the old days I could have said something like if you fancy a very straight shoot 'em up then for £2 50 you haven't got much to lose but quite honestly, you don't have any reason to buy this at all anymore For £1 99 you can do better elsewhere

Program *Hypertron*
Price *£2 50*
Micro *Spectrum*
Supplier *5 Pine Dale*
Rainford
Merseyside
WA11 8DP

PATTERNS

Although there is no Spectrum equivalent of Jeff Minter's awesome *Psychedelia* yet available, people currently casting envious glances at that program who own Spectrums could do a lot worse than *Disco Screen* which has similar intentions but works a different way

Unlike *Psychedelia* which gave you complete control over a sophisticated range of light and pattern effects, with *Disco Screen* you have no control at all.

What the program does, instead, is react directly to the sound which you feed into the Spectrum via the Ear socket on the machine

The idea is this: you play your favourite music (or whatever) and feed the sound output of your cassette player into the Spectrum The program works in two modes 'Disco' and 'Relax' (the latter does not have anything to do with Frankie Goes to Hollywood but instead tends to produce less garish patterns than Disco) The program uses the sound to produce complicated patterns on the screen which are intended to reflect the patterns in the music

The key to any program like this is the degree to which the patterns can be matched to the music and actually this program works quite well. The music is used to trigger moire patterns, oscilloscope-like traces, and all kinds of other blocks of colour

It works best on music that stops and starts a lot, but generally the correspondance between music and pattern is quite good

Those dreadful colour attribute problems crop up continuously though, sometimes they look OK but equally often make you feel extremely ill

An interesting and different program well worth tracking down.

Program *Disco Screen*
Price *£7 95*
Micro *Spectrum*
Supplier *PSU Byproducts*
PO Box 510
Carless Avenue
Birmingham
B17 9ES

Pick of the week

UNPREDICTABLE

You can get a certain sense of *deja vu* reviewing the latest batch of Amsoft releases, there is a simple reason for this – most of the current stuff are conversions of previous successful (or semi successful) programs.

Nevertheless the Amstrad programs are often an improvement on the originals and here and there you get some real gems.

Splat was a program that, though successful, didn't get the enormous following it deserved when submerged beneath a great weight of Spectrum software As an Amstrad program its worth may be more quickly apparent and with any luck it'll become one of the essential programs for the machine

Unlike all those games where you move around a maze, in *Splat* the maze moves around you – worse than that it moves around you in an unpredictable way This

This Week

Bridge 85	S	MSX	£6 95	Alligata
Castles and Clown	Ed	Spectrum	£5 95	Macmillan
Disco Screen	Ut	Spectrum	£7 95	Ash Byproducts
Hellfire	Arc	Spectrum	£8 95	Melbourne Hse
Quizlimar	Ed	Spectrum	£5 95	Macmillan
Out of the Shadows	Ad	Spectrum	£7 95	Mizar
Snapple Hopper	Ed	Spectrum	£5 95	Macmillan
Space Scan	Ed	Spectrum	£5 95	Macmillan
Sunflower Number Show	Ed	Spectrum	£5.95	Macmillan
Supermind	S	Spectrum	£1 95	A + B PG
Tops and Tails	Ed	Spectrum	£6.95	Macmillan
Bridgehead	S	ZX81	£5	Gavin Barker

Key **Ad** – adventure **Arc** – arcade **Ed** – education **S** – strategy simulation **Ut** – utility

simple piece of role reversal makes for a totally new sort of game and you desperately try to avoid getting crushed by a maze wall – this happens when you get pushed into the corner of the TV screen

The only other objective is to eat as much grass as possible and move through the levels, there are eight in all, and each is more difficult

It's simple and it's wonderful The only criticism I might make is that the authors haven't really developed it at all using the extra features of the Amstrad over the Spectrum Even the sound is pretty much what you'd get from the dire Spectrum bleeper Despite that, buy it

Program *Splat*
Price *£7.95*
Micro *Amstrad*
Supplier *Amsoft*
165 Kings Road
Brentwood
Essex

SYNTHETIC

Fans of *Heroes of Karn*, and there are many, will be pleased to learn that part two of that trilogy, *Empire of Karn* is soon to be released.

For those who didn't play the original it was marked by neat (if very slow) graphics, reasonably sophisticated language analysis, but more than anything else, clever puzzles, some very difficult problems and lots and lots of action

The plot I really cannot go into, told as straight narrative it has the usual hallmarks of adventure games, ie, the Programmer(s) O D-ing on bad fantasy fiction. Yes, it's all about magic swords, lords going dark, ancient mysteries and funny names like Zhef the Insane

In any event it's probably marginally less trite and silly than the usual plots of most adventures

The very first location has a tricky little problem in it – you see a sword it says, you go to get it and are told that it is held by a mysterious force In the immediate locations there are dozens of highly investigable objects and likely looking locations, and its this property that makes the adventure good – there are plenty of options

I'm not so sure about the continuous synthetic chamber music, however, although generally I'm a great believer in adding sound effects to adventures

You could do a lot worse things with your time than save the Empire of Karn from Zhel

Program *Empire of Karn*
Price *£7 00*
Micro *Commodore 64*
Supplier *Interceptor Micro's*
Lindon House
The Green
Tadley
Hants

NO LOGIC

God knows what goes through some companies' minds when they decide a game should be released? For example, supposing you are the manager of a software house (having moved there from hoola hoops, skateboards, CB radio, cabbage patch kids and double glazing) and somsone plonks on your desk a game which is an average version of a program that has been done to death by lots of other companies and is, anyway, totally unexciting and old hat. What would you do?

a) Sent it back with a polite rejection note b) decide to release and support it with colour ads? If you answered 'b' then you have what it takes to be in charge of a software house

Hubert is, you might guess, *Qbert* and it is for the BBC B It is a pretty exact copy of the original with 18 screens, platforms to escape on and various funny monsters that jump down a 3D pyramid at you. You are on a time limit for each screen, indicated by a line of paint that gradually runs out The sound effects are bright and tacky and at £5 50 I suppose it's marginally cheaper than most BBC games, but the logic of its release is beyond me

Program *Hubert*
Price *£5 50*
Micro *BBC B*
Supplier *Consolidated Software Marketing*
Suite 38, Strand House
Great West Road
Brentford
Middlesex

INTELLIGENT

You'd have thought that every possible machine code utility had been issued and perfected, but every once in a while a new one comes along This one is called *Disassembler/Relocator* and comes from Draysoft When it comes to this sort of thing, it's no good pretending I'm much of a judge of good from bad so I'll just tell you what it says in the blurb.

The *Disassembler* is very fast and handles the bytes after RST 08h and RST 28h correctly It will also handle all of the extra Z80 instructions properly. The *Relocator* is intelligent and will not try to relocate labels or text It will also save the relocated code to tape with the correct header

The manual is very extensive indeed including an appendix printing information out via RS232 and Interface 1

Program *Disassembler/Relocator*
Price *£5 95*
Micro *ZX81 16K*
Supplier *Draysoft*
2 Bedford Way
Rugeley
Staffs

This Week

A + B PG, Solon 11c Eylendjia, Nicosia Cyprus **Alligata** 1 Orange Street Sheffield S1 4DW 0742 755796 **Amsoft** Brentwood House, 169 Kings Road Brentwood, Essex CM14 4EF 0277 230 222 **Ash Byproducts** PO Box 510 Carless Avenue Birmingham B17 9ES **Associated Services** 23 Chesham Street London SW1 8NQ **Bug-Byte** Mulberry House Canning Place, Liverpool L1 8JB 051 709 7071 **Gavin Barker** 12 Fleming Field, Shotton Colliery, County Durham 0783 261405 **Interceptor** Lindon House The Green, Tadley Hants 07356 71145 **Macmillan** 4 Little Essex Street, London WC2R 3LF 01-836 6633 **Melbourne House** 38 Milton Trading Estate Abingdon, Oxon OX14 4TD 0235 835001 **Mizar,** 104 Bradwell Road Bradville Milton Keynes MK13 7DH **Romik** 272 Argyll Avenue Slough Bucks SL1 4HE 0753 71535 **Storm,** Newbury Court, High Street Gillingham Dorset SP8 4QX 07476 2774

This Week is a new section that covers all the new software coming on to the home micro market each week All suppliers should send details of their new programs to This Week, *Popular Computing Weekly* 12-13 Little Newport Street, London WC2R 3LD



Rarefied heights

I have a message from upmarket. This is the new, computer snobbish Langford calling from the rarefied upmarket heights Are you receiving me yet ?

I found it hard to be a computer snob in 1984· the spirit was willing, but the machine was only a Commodore 64 Hard to find anyone to look down on from that position, except the odd Spectrum owner (and even they tended to get uppity about software quality) So a few days ago I took the plunge and bought an Apricot – Barclaycard will *not* be amused – and looked forward to a future of being a Real Professional. No more awkward software problems, no more missing bits of hardware, not at this price!

Yes, well, I always have been a bit naive I wasn't very good at the subtleties of these classy computers, but even my untrained eye spotted the first difficulty when we opened the box "Er shouldn't there be a mains lead?" (Or did the thing operate on solar power? An inbuilt reactor? Microwave beams from synchronous-orbit satellites?)

"Oops,' said my dealer "Look, I'll lend you one Now here's the monitor hey, this'll make you laugh, when they delivered it the display was out of focus. You'd have had to pay carriage costs to send the thing all the way back to ACT and have them adjust it, only luckily I have this pal who did a bootleg job last night." I made a mental note to buy my dealer a pint

"Here are the system software disks," he went on, "and in the box will be a voucher entitling you to a Concurrent CP/M operating system – you won't want it, but it comes free, so you may as well – Oops ACT seem to have left it out." I made another mental note, not of the same kind

"I'll try and get them to send it on Now, you boot up the system like *this* How about if you try your hand at formatting a disk while I just ring ACT? Got a bone to pick with them."

The disk formatting turned out to be very jolly and user-friendly· no mucking around with special appalling commands like the CBM64's, you just followed the right menu path from power-up I selected the option *Disk*; then *Format*; then *Right* (picking the right-hand drive), then ... gosh, it was doing it!

"It shouldn't be doing that!" shrieked my dealer in panic, having failed to get through "It should ask you whether you want to format single-sided or double-sided disks Argh! It's done it single-sided! That's wrong!"

Quickly we pieced together the exciting story My utility software was an ancient release from before the days of double-sided disks Thus it automatically formatted them so as to give me half the storage capacity I'd paid for

"We'll just copy the modern utilities from my own disks," said my dealer very wearily

"Pints," I told him encouragingly "Enormous pints" And we went off to drink some

The beautiful moral of this tale is that even after paying vast sums for a business machine, you can meet just as many cock-ups and have just as much challenging fun as with anything from the cheap and nasty end of the market Of course everything's been seen to now and I'd be word-processing this very article on my shiny new Apricot, if only my otherwise wonderful dealer had remembered the printer cable

David Langford

Zero to nine

Puzzle No 142

There are many ways in which ten plastic counters, numbered with the digits zero to nine, can be arranged so as to form a complete addition, subtraction, multiplication or division sum, using in each case all ten counters

In the example below, is a simple multiplication sum, but, as you can see, all of the counters are turned face down – except for the one on the extreme right

× = 1

Can you determine what numbers are on the other counters?

Solution to Puzzle No 137

The ages were 9, 42, and 63 and the event occurred in 1944

We are required to find three integers a, b, and c, such that $c^2 - b^2$ is equal to $b^2 - a^2$, the difference in each case being the same and equal to a year in the last half-century

```
10 LET B=16
20 FOR A=1 TO B-15
30 LET DIFF=B*B-A*A
40 LET S=B*B+DIFF
50 LET C=SQR S :C=VAL(STR$ C)
60 IF C=INT(C) THEN PRINTA;B;C DIFF
70 NEXT A
80 LET B=B+1
90 GOTO 20
```

Taking the two smaller ages the program calculates the difference between the squares of these ages and then adds this difference on to the square of the higher of the two ages The square root of this number, if it is integral represents the third age As the question states that the answers should be legally and biologically possible, only those with a minimum difference of 15 between the ages are considered There are a number of possible sets of figures but only one has the difference of the squares in the range 1934 – 1984

Winner of Puzzle No 137

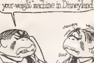
The winner of Puzzle 137 is R. M. Gosling of Alveston, Bristol who receives £10

Rules

The closing date for Puzzle No 142 is 8 February

The Hackers






Cronies and Frogs in Mikro-Gen's Progs....
WITCH'S CAULDRON
SPECTRUM 48K £6 95
Gor blimey a hopping good programme
MIKRO-GEN
44 The Broadway Bracknell Berks 0344 427317



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-COMMODORE 64-

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